Intensive Agriculture

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Intensive Agriculture

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Intensive Agriculture

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THE PICTURE ON THE COVER

Five to six eggs per head per year—this in short sums up the poor place poultry occupies in our national economy. But this need not be so any more. More and more of laying birds of superior quality and modern methods of poultry management can bring the day nearer when there will be available one egg per head per day.

FARM INFORMATION UNIT
DIRECTORATE OF EXTENSION, MINISTRY OF FOOD AND AGRICULTURE, GOVERNMENT OF INDIA, NEW DELHI

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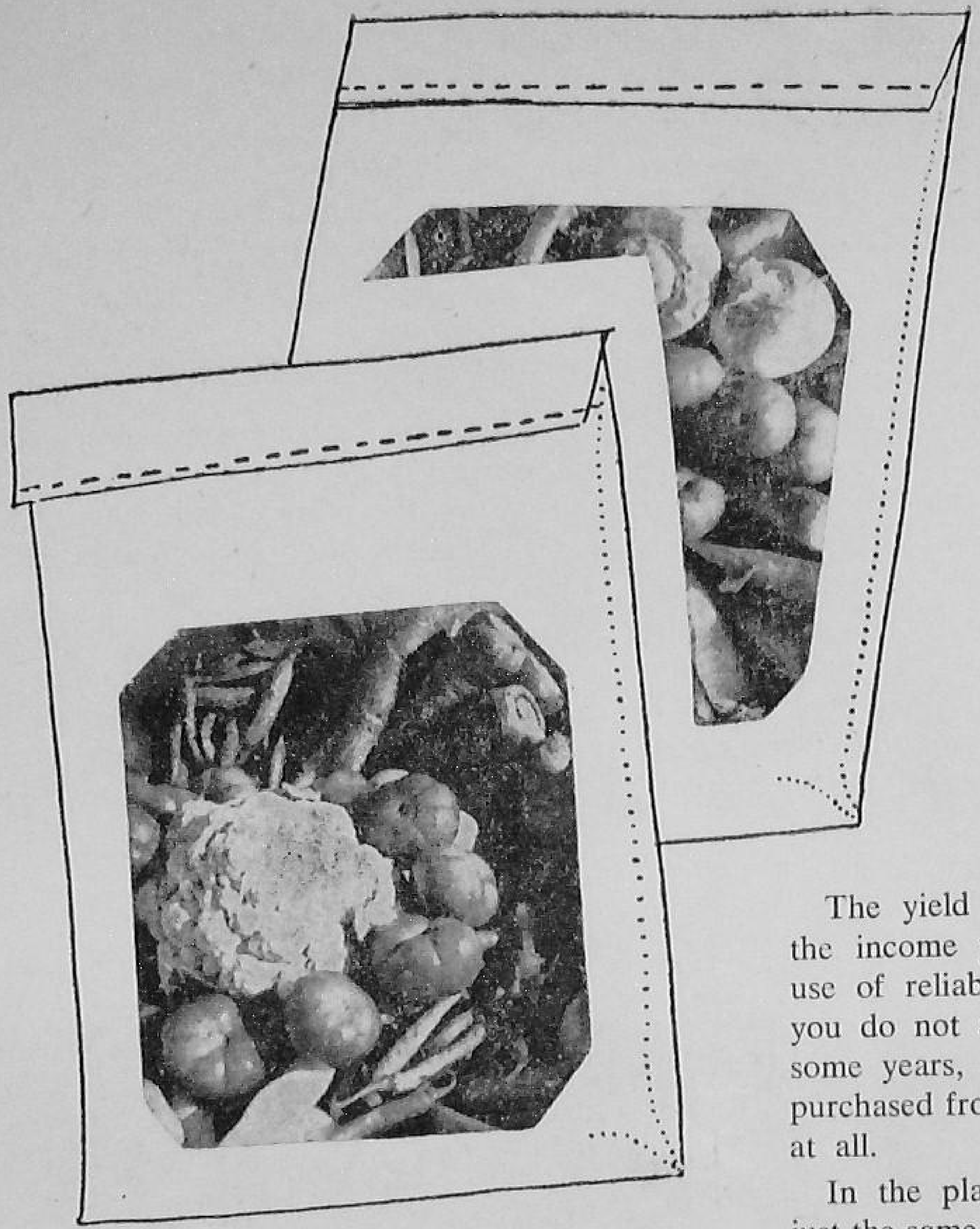

Nothing like producing your own **vegetable seed**

By
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Division of Botany, I.A.R.I.
New Delhi

THERE is one very good way of getting quality vegetable seed, and that is to produce it yourself.

The yield and quality of vegetables you get and the income you earn from them depend upon the use of reliable seed of high-yielding varieties. This you do not always get from your seed supplier. In some years, you might have seen that the seed you purchased from your supplier did not give good results at all.

In the plains, you raise vegetable crops for seed just the same way you raise them for getting vegetables. Only, you have to give special attention to pest and disease control and to harvesting.

Vegetable crops grown in the plains can be of three kinds, depending upon the method of pollination :

(1) Self-pollinated such as tomato, cowpea, *sem, guar,* peas, *methi* and brinjal.

(2) Often cross-pollinated such as chilli, *bhindi,* etc.

(3) Cross-pollinated such as cucurbits like bottle-gourd, ribbed-gourd, sponge-gourd, pumpkin and bitter-gourd, *tinda, chapan, kaddu,* water-melon and musk-melon, cauliflower (early and mid-season varieties), turnip, radish, and carrot (*desi* varieties), *sengri,* onion, *palak, chaulai* and *kulfa.*

As most of the vegetables you grow are cross-pollinated, do not grow two varieties of the same crop in adjacent plots. Keep a distance of 400 to 800 metres between them. This way you get seeds true to type.

In the case of self-pollinated crops, it is enough if you keep a distance of 150 metres between two varieties.

ROGUE OUT OFF-TYPES

Rogue out or remove off-type plants or plants which are unlike the parent, and also other undesirable plants.

To do this, you should know the characteristics of the variety you are growing. Rogue out the off-types in stages as and when you notice them. Complete the roguing before the crop comes into flowering, especially in cross-pollinated crops.

TWO METHODS OF RAISING SEED

In the case of crops like cauliflower, turnip, radish and carrot, there are two methods of raising seed : (i) direct or 'seed to seed' method; and (ii) 'head or root to seed' or the transplantation method. In the first method, seeds are produced directly from the crop sown or planted in the field. In the second method, heads or roots are transplanted in another field for seed production.

Some growers think that the seeds produced by the transplantation method are better in quality than those produced directly. But experiments have shown that the mere process of transplanting does not improve the quality of seed. On the contrary, the seed-yield is very much reduced by transplanting.

The practice of transplanting only helps in the process of roguing. In the case of cauliflower, it is not difficult to know the off-type and undesirable plants without transplanting the heads. But in the case of root crops like turnip, radish and carrot, it is not possible to detect the off-type plants without uprooting them. So in their case you will have to transplant the roots to produce pure seeds. In the case of cauliflower also, especially when you want to produce only a little amount of seed for your own use, you can use the transplanting method. Transplanting the

In the case of tomato, mark the high-yielding plants and select fruits from only those plants for seed purposes

heads in another field will help you utilize the main field for growing other crops.

In the case of root crops, there is a practice of cutting the lower portion of the roots before transplanting. But it has been seen that this practice further reduces the seed-yield. So plant the whole roots, wherever possible, to obtain a higher seed-yield.

TOMATO

The ripe fruits which are used for vegetable purposes are also utilized for seed production. Generally, fruits for seed are selected after picking. If you do this, it is likely that you will select fruits from poor-yielding or undesirable plants also. Hence select the individual plants, mark them, and collect the ripe fruits for extracting seed only from these plants. Do not select natural hybrids for seed even though they are vigorous and high-yielding.

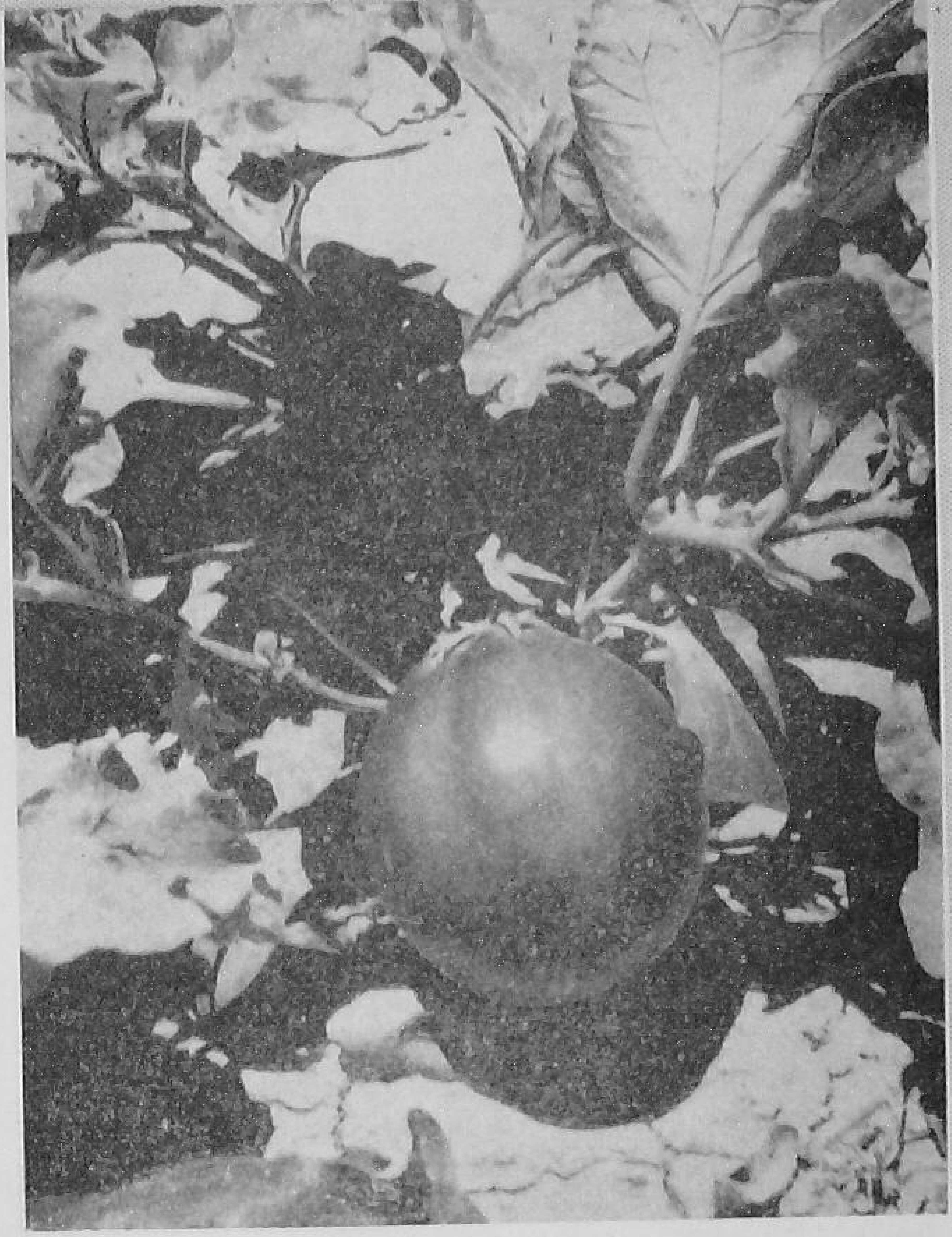
In areas where there is a danger of frost, better extract seeds from fruits of the spring-summer crop which is planted early in spring and the fruits of which are ready in summer, i.e., April-May. This crop is free from pests and diseases. Also seed production in this season is more economical.

To extract seeds, crush the fruits and keep them in wooden boxes for fermentation for a day or two. By this process, you will find it easy to separate seeds from the pulp and skin. Next, put the fermented fruits in a tub of water. The pulp and skin will float, and the seeds will settle down at the bottom. Remove the pulp and skin by slowly drawing the water away.

Put the clean seeds in a cloth bag, and squeeze out the water completely. After this, spread the seeds in enamel trays or in some open containers for drying.

This method of extracting seed takes a lot of time; so you can adopt another way. After crushing the tomato fruits, add 100 cubic centimetres of commercial hydrochloric acid to 14 kilograms of tomato fruits, and mix thoroughly. In about half an hour, the seeds will be separated from the pulp; you can then clean and dry them.

In both these methods, however, the juice of the tomato fruits is wasted. By using a tomato juice extraction machine which costs about Rs. 15, you can avoid this wastage. With this machine, you can take out the juice, leaving aside the seed and skin. Keep the seed along with the skin in an enamel bucket for a day or two for fermentation. After that, clean and dry the seeds.



Allow the brinjal fruits to ripen on the plant

BRINJAL

Grow the seed-crop of brinjal in the rainy season when the seed-yield is usually higher. Do not raise brinjals for seed in the spring season. Allow the fruits to ripen on the plants. The ripe fruits usually change into yellow colour. But in deep black-coloured varieties, the colour simply fades on ripening. At this stage, the seeds are fully mature and well-developed and are of a bright yellow colour.

Cut the ripe fruits into pieces and crush with a hammer after placing them on a gunny cloth. Put the crushed fruits in a tub of water. The mature seeds will settle down and the pulp along with the skin and immature seeds will float to the surface. Separate out the seeds as in the case of tomato. Dry the seeds quickly by spreading in thin layers, as otherwise there is a danger of their germinating poorly.

BHINDI

Allow the pods to mature on the plants. When the pods dry up, collect them and spread them on tarpaulin for further drying. When the pods are completely

Dry the pods meant for seed on the plant itself. But do not delay the harvest too much

dry, beat them with a stick to take out the seeds. Dry the seeds thoroughly and grade them.

Separate out the immature and undeveloped seeds by putting the seeds in a tub of water for 10 to 15 minutes. The well-developed, mature seeds will settle down at the bottom and the immature seeds will float on to the surface. Remove the floating seeds. Take out the good seeds and dry them thoroughly before storage.

COWPEA

There are two types of cowpea. One is grown in summer and the other during the rainy season.

Early sowing is not economical for seed production. The monsoon variety of vegetable is usually sown in June. But for seed, you shall have to sow it in the middle of July. Otherwise, the ripe pods will be damaged by the rains. The late-sown crop will not be affected by the monsoon.

Weevils attack the pods very badly, and sometimes they even attack the seed before the threshing. So thresh the crop as soon as possible, and dry the seeds thoroughly. Also treat the seeds with 10 per cent DDT at one part to 1,000 parts of seed, before storing.

PEAS

Harvest the plants when they dry up in the field. However, do not delay the harvesting too much, as it may result in the shedding of the seeds. Thresh the seeds and dry them well.

Grading of seeds is very essential in the case of peas, as insect-eaten and split seeds may get mixed up with the good ones. Remove the off-type seeds at the time of grading.

CAULIFLOWER

The seeds of only early and mid-season varieties of cauliflower can be produced in the plains. The late varieties should not be grown for seed purposes in the plains.

When the curds have been formed, remove all the undesirable plants and allow the remaining plants to produce the seeds. For small-scale seed production,

however, you can transplant selected plants in a well-prepared field. Select plants with well-developed white curds for transplanting. Lift the plants along with the earth ball, avoiding injury to the root zone. The mid-season varieties should not be transplanted.

At the time of flowering, the plants may be attacked by aphids. Control them by spraying the crop with 'Malathion,' 'Malamor' or 'Basudin' at one part in 1,200 parts of water.

ROOT CROPS

For obtaining seed of the *desi* varieties of root crops like turnip, radish and carrot, you have to transplant the selected roots.

Plant the roots with a spacing of two feet between the rows and 1½ to 2 feet between the plants within the row, in a well-prepared and fertilized field. Keep only about 6 inches of the tops over the roots. Irrigate the fields immediately after planting. Apply fertilizers when the plants get established and have put forth new leafy growth.

The plants are attacked by aphids. Use the same spray as in the case of cauliflower to control them.

When the crop matures, harvest only the mature clusters. Dry the seeds and grade them before storage.

ONION

Prepare the land thoroughly. Plant selected onion bulbs in October, with a spacing of two feet between the rows and one foot between the plants. The plants flower in about three months. Harvest the flowering heads when they start drying, and thresh them. Dry the seed properly before storage.

LEAFY VEGETABLES

These include *palak, methi, chaulai* and *kulfa.* Grow these crops as usual. After taking one or two cuts, leave the plants for seed.

STORING SEED

The seeds lose their germinating power if they are not stored properly. The moisture-content of seeds is an important thing to bear in mind. Take care to dry the seeds thoroughly before storage. Keep the dried seed in air-tight containers, in a cool, dry place. Treat cowpea and pea seeds with insecticides before storage.

RENEWING SEED STOCKS

The seed gets contaminated gradually, after cultivation for a number of years. Hence, renew the stock after every three or four years.

Get the nucleus seed from a research institution or any other reliable source. A large number of improved vegetable varieties have been released by the Indian Agricultural Research Institute, New Delhi.

You will do well to obtain the nucleus seed of vegetables from the Division of Horticulture, Indian Agricultural Research Institute, New Delhi-12.

Calling Punjab Vegetable Growers !

IN JUNE, vegetable growers in the Punjab will do well to follow these recommendations :

*Sow early cauliflower in the nursery after the middle of the month. For early sowing, use the variety *Early Kumari.* Make the seed-bed in an open space; provide for shading the young seedlings from the hot sun. A half to three-fourths of pound of seed will be sufficient to produce seedlings for planting an acre.

*Sow chillies in the nursery for transplanting in July.

*Harvest cucurbits as and when ready. You can sow the seeds of late crops of water-melon, *tinda, phut,* pumpkin, luffa and sweet potato after the advent of the monsoon.

Continue transplanting sweet potato cuttings.

*Towards the close of this month, sow tomato and egg plant in the nursery for raising early crops. The seed-rate is half a pound per acre.

Harvest the seed crops of radish and carrot.

*Spray the brinjal crop with 0.2 per cent DDT suspension or 0.04 per cent 'Endrin' emulsion at 45 to 100 gallons per acre every 15 days to prevent the fruit and shoot-borer from boring the terminal shoots and flower buds, and to control *hadda* and the tingid bug. Be ready with 0.25 per cent aramite or 0.25 per cent wettable sulphur with DDT suspension for use against the red-spider mite or vegetable mite which usually comes out as a result of DDT spray.

The red-spider mite may attack *tinda* also. Spray 0.25 per cent aramite to suppress it.

*If there is a chance of aphis attack on brinjals, melons and water-melons, spray nicotine sulphate (1.800) containing 0.2 per cent soap on the crops.

Control jassid and red-spider mite of *bhindi,* by spraying a mixture of 0.1 per cent DDT suspension and 0.25 per cent aramite.

*In hilly areas, spray cruciferous vegetables with 0.1 per cent DDT suspension to check the incidence of the cabbage butterfly and the painted bug.

*To save potato tubers meant for seed only from the attack of the tuber moth, dust two ounces of a five per cent BHC or DDT dust to every maund of potato at the time of storage. Keep potatoes in heaps of not more than 9 to 12 inches high.

The where and how much of AMMONIUM CHLORIDE

By
A. K. DUTT
Soil and Fertilizer Specialist, Directorate of Extension
New Delhi

AMMONIUM CHLORIDE is a new nitrogenous fertilizer that is being manufactured in our country. It is a crystalline salt which looks like ammonium sulphate.

Ammonium chloride contains 25.0 per cent nitrogen. As such, taken weight for weight, it is richer in nitrogen than ammonium sulphate. Besides nitrogen, it also contains 66.0 per cent chlorine.

HOW DOES IT COMPARE WITH AMMONIUM SULPHATE?

The nitrogen part of ammonium chloride is as effective for crop growth as the nitrogen in ammonium sulphate.

You can use ammonium chloride the same way as ammonium sulphate, both as basal and top-dressings.

It makes the soil as much acidic as ammonium sulphate for the same amount of nitrogen added.

In soils which cause sulphide injury to the paddy crop, it is a better fertilizer than ammonium sulphate.

Like ammonium sulphate, it also gives poor results in moderately to highly acidic soils unless they are limed from time to time.

WHERE TO APPLY

You can apply ammonium chloride under a wide range of soil conditions and to almost all crops.

But as it contains chlorine, do not use it for crops like tobacco and citrus. For, otherwise, the crop quality will suffer.

HOW TO APPLY

Basal-dressing :

Wetland paddy (rain-fed and irrigated)

Apply the fertilizer to the ploughed field at the time of puddling before sowing or transplanting paddy.

Dryland paddy, wheat, cotton, sugarcane, vegetables, etc.

Apply during the final tillage operation before sowing or transplanting and mix it thoroughly with the soil with a plough or harrow.

Top-dressing :

Apply this fertilizer as a top-dressing over the standing crop if the leaves are dry. Mix the fertilizer with dry sand or soil before application, if moist. For widely-spaced crops, it may be applied to the soil between the crop rows.

Wetland paddy

If you have control over your irrigation, first drain out the field, then apply the fertilizer, mix it with the soil, and irrigate immediately.

Otherwise, follow the recommendation for rain-fed conditions, apply the fertilizer to the standing water and mix it with the soil.

Dryland paddy, wheat, cotton, sugarcane, vegetables, etc.

If you are applying when the soil is moist, mix it with the soil.

If the soil is dry before irrigation, avoid over-irrigation.

When the fertilizer is applied to a dry soil under rain-fed conditions, do not mix it with the soil.

HOW MUCH TO APPLY

If you are using 100 pounds of ammonium sulphate or calcium ammonium nitrate, apply only 80 pounds of ammonium chloride in its place. If, however, you are using 50 pounds of urea for any crop, use 75 pounds of it, instead.

For specific fertilizer recommendation for the particular crop in your field, consult your local Extension Officer or the Gram Sevak.

CAN IT BE MIXED?

You can safely mix it with other fertilizers and store the mixture for future use.

HOW TO STORE AND HANDLE

The fertilizer is made available in 75-kilo bags. If it becomes necessary to store the fertilizer after the bag has been opened, the gunny bag should be carefully tied up after the required quantity of fertilizer has been taken out.

Do not open the bag until you need the fertilizer.
Do not allow the bag to come in contact with damp or moist floor.
Do not keep extra weights on the bag.
Store the bag in a cool and dry place.

Daryao Singh (right) and Nanulal (left), the first and the second prize winners

The TWO are akin in cane growing

By
LAL KARAMCHANDANI

DARYAO SINGH belongs to Jamunia village and Nanulal to Hasanpur, neighbouring villages about 25 miles away from Bhopal. Daryao Singh is 45, and Nanulal 40. But there the difference ends. In fact they have so much in common that their neighbours call them brothers indeed if not in reality.

Apart from their common neighbourhood, common outlook and similar upbringing, there is yet one more thing common in them. Both are prize-winners in sugarcane—the only difference being that Daryao Singh bagged the first prize and Nanulal the second in the North India Sugarcane Competition in 1961-62.

Daryao Singh's prize-winning crop was of 2,194 maunds while that of Nanulal of 2,072 maunds. This could have been other way round too. For they cultivated the same variety, gave equal manurial doses, prepared their lands the same way; even the irrigations, intercultivations, etc., were almost the same.

The story of Daryao Singh, therefore, is also the story of Nanulal.

Daryao Singh planted the cane variety *678*, as recommended by the District authorities. He followed the furrow method for planting in December '60, using 80 maunds as seed-rate per acre.

As a basal dose, he gave 40 cartloads of cow-dung manure. He also ploughed in sannhemp. This green manure crop he finds very cheap and very useful too.

Daryao Singh knows well that the sugarcane is a heavy feeder. To yield high, the crop must be fed well. That's why he put in 4 hundredweights each of ammonium sulphate and superphosphate.

He put in ammonium sulphate in two equal doses—the first one in March and the second one in July during the last earthing.

He gave three earthings to the crop—in February, April and July. In addition, he frequently weeded the crop so that it could get the maximum out of the soil.

The prize-winner Nanulal takes care of his cane crop against pests and diseases right from the beginning

Daryao Singh is an all-rounder. Apart from the prize-winning cane crop, he raises bumper crops of potatoes, onions, etc.

The sugarcane also needs plenty of water and Daryao Singh saw to it that the crop got water whenever it needed—and the crop needed it 25 to 30 times. For Daryao Singh and other farmers nearby, there is a Government tank which iirrigates about 1,500 acres.

But it was not as simple as that to bag the prize. A good land-preparation, heavy fertilization, use of an improved variety, better cultural practices—all these no doubt play their part in raising a bumper crop. Daryao Singh took all these steps and one more— that of protecting his crop against pyrilla and stem-borer. For he knew from his own previous experience that a good, promising crop could simply be ruined by these two deadly cane enemies. To check them, he sprayed 'Aldrin' at the rate of one pound per acre.

Daryao Singh didn't forget to protect his can from lodging. To do that, he started doing things early. In May-June, he tied the crop with fresh cane leaves, when it was eight feet high.

Next, he removed the lower dry leaves and used them for tying the crop once again in July. But this was not enough. By August, the crop was already 12 to 13 feet high and was growing fast. So he had to fix bamboo poles to tie the crop on to them. This time, he used strings and wires for the purpose.

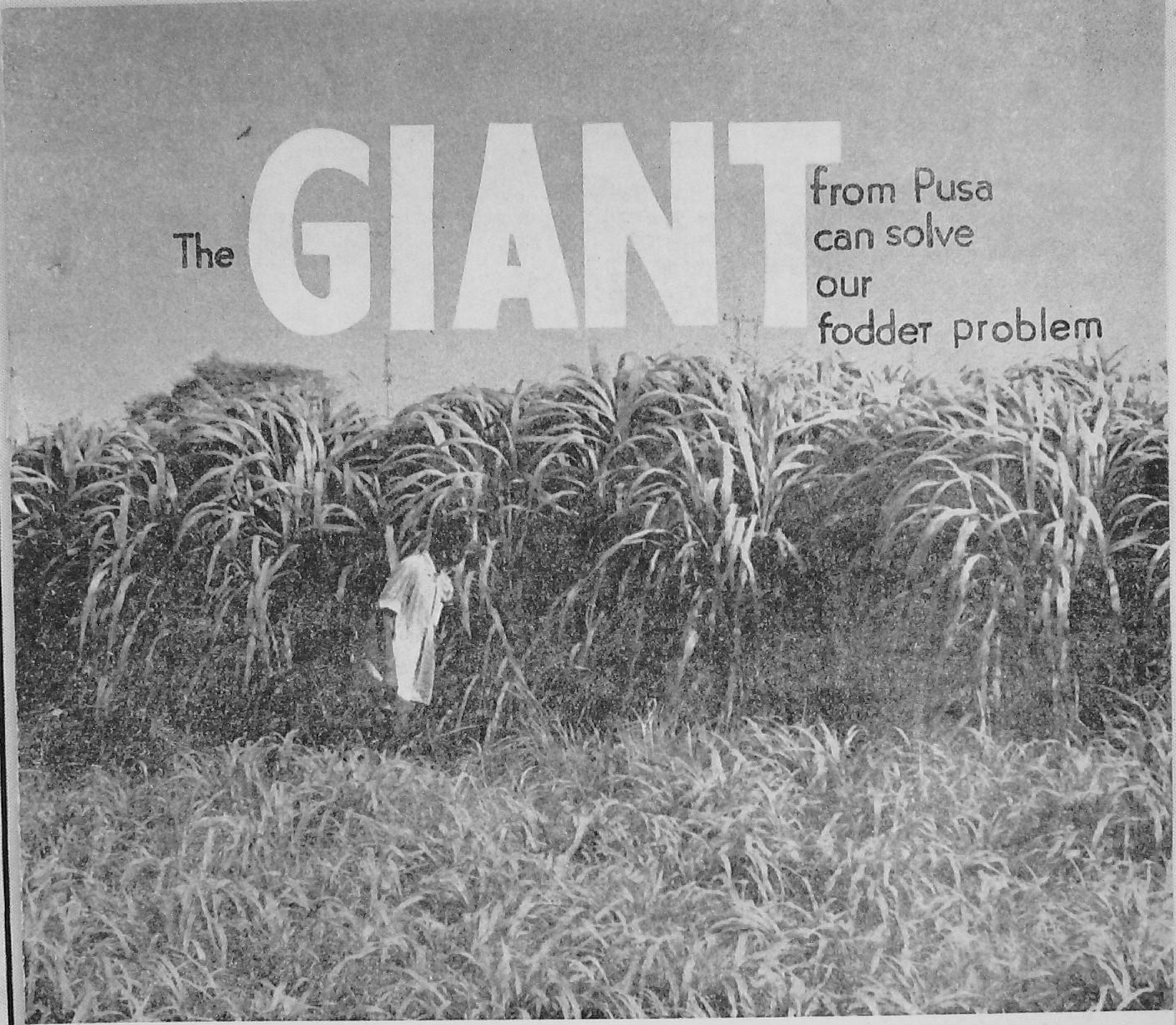
The crop of Daryao Singh grew to a height of 24 feet. The canes were so thick and healthy that one could hardly distinguish the canes from the bamboo supports for the crop !

The crop from the competition plot yielded 2,194 maunds of cane per acre, good enough to bag the first prize. Nanulal's crop yielded a little less—2,072 maunds. And that made all the difference between the first and the second prize.

Daryao Singh and Nanulal are not just cane-growers alone. They are equally good at growing other crops well—potatoes, wheat, etc. They, whenever space and time allow, go in for catch crops, e.g., onions, in-between the main crop. It is no wonder they are viewed with envy and respect by neighbouring farmers.

This year too, both Daryao Singh and Nanulal have entered the competition. But their yields are slightly lower than the last year's yields. Daryao Singh got a 2,053-maund crop whereas Nanulal a 1,918-maund crop. The All-India results are not yet out. But already both the farmers have started working for their next year's competition. It will be worthwhile and interesting to watch as to who beats whom in their yearly contests !

The GIANT from Pusa can solve our fodder problem



Born out of Napier grass and bajra, this GIANT out-yields both; provides fodder the year round.

By
HARBANS SINGH
Animal Husbandry Specialist
Directorate of Extension, New Delhi

THE INDIAN Agricultural Research Institute, New Delhi has released a fodder grass which is of interest to all cattle owners. This grass, known as Pusa Giant Napier, has out-yielded all fodder grasses known to us in the country.

Pusa Giant Napier is a hybrid, obtained by crossing Napier grass (which by itself is a high-yielder)

with the cultivated *bajra*, and has all the good qualities of both.

Though the Giant comes up best in the warm climates, you can raise it almost everywhere in this country. You are always assured of twice as much fodder every year as from Napier. On an average, Pusa Giant produces an annual 150 tons of forage.

Besides being a very heavy yielder, Pusa Giant has many other qualities.

*It is more nutritious than Napier, and is very palatable.

*The leaves of Pusa Giant are larger, and greener than Napier. They do not have coarse hairs and sharp edges as those of Napier.

*At any stage of growth, even at flowering, its stems are softer and jucier than those of Napier. You can, therefore, cut Pusa Giant as you want without sacrificing the yield or the quality of the forage.

*As compared to Napier grass, Pusa Giant grows quicker, tillers much more with more and thicker roots. Thus you can get a large number of rooted slips and stem cuttings for your new plantings. The cuttings will establish themselves quicker too than Napier slips and cuttings.

*It produces 50 per cent more roots than Napier and unlike Napier, most of the roots lie within a foot of ground level. Cultivation of Pusa Giant will, therefore, add more organic matter to your soil and make it rich.

*Pusa Giant Napier responds better than Napier to the application of higher doses of nitrogen.

*In north and east India, where *jowar* and maize are often grown under irrigation for fodder during the scarcity periods in the spring and summer, Pusa Giant Napier can give a much higher yield than any of the two. In summer especially, Pusa Giant Napier gives a luxuriant growth when there is hardly any other green fodder available.

TO CULTIVATE THE GIANT

Planting : Plant only the rooted slips and cuttings. A stem cutting should have at least two nodes on it. The best time for planting for yields in the spring or summer, is the end of February or the beginning of March or with the onset of rains. If irrigation is possible, you can, however, plant at any time of the year, except during the severe winter months.

Preparatory tillage : During January-February, plough your land once or twice. Apply 15 to 20 cart-loads of farmyard manure per acre. Plough the land once again and level it up.

Make rows 1½ to 2 feet apart. Plant rooted slips or stem cuttings 1½ to 2 feet apart in the row. You will need 8,000 to 12,000 (8 to 12 maunds) rooted slips or stem cuttings to plant an acre this way.

Irrigation : Immediately after planting, irrigate the plots heavily. Irrigate once a week afterwards for about two to three weeks till the plants get established. Later, irrigate the plots at fortnightly intervals depending upon rainfall and other seasonal conditions.

Manuring : Pusa Giant Napier responds very well to nitrogen manuring. In addition to the basal dose of farmyard manure, apply 100 pounds of nitrogen as ammonium sulphate per acre. Give this much of fertilizer in four equal doses in a year at three-month intervals. The first dose is to be applied after the plants are established and the rest after about 15 days of every cutting, except during the winter months. Spread ammonium sulphate around the clumps and mix with the soil either by hand or hoe.

TAKING THE CUTTINGS

If you plant during February-March, you can take the first cut by the middle of May. You can take subsequent cuttings after every 45 to 50 days, except during the winter months from November to January, when the growth is slow. Delay the cuttings during this period. If, however, you are at a place where winter is not severe, you need not wait long for taking cuttings during the winter months also.

Cut the stems of the plants at a height of four to five inches from ground level. If you cut them too close to the ground level you will damage the young growing buds near the base of the plant. Pusa Giant Napier will give you cuttings for three years.

You can get planting material of a Pusa Giant Napier from the Head of the Division of Botany, Indian Agricultural Research Institute, New Delhi.

CORRECTIONS

*In the February '63 issue of EXTENSION, the author's name for the article 'Boron hunger brings down yields' should read A. K. ROY and not A. K. DUTT.

*In the March '63 issue of INTENSIVE AGRICULTURE, the article 'Feed Vitamin A to your poultry', was written by M. KANTHASOMI.

By
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New Delhi

AN IMPORTANT question that a would-be poultry-keeper generally asks is : how much do I invest, and how big should be my flock to start with.

The answer is : you need not invest much more than you can afford; start with a 100 birds. For this, you purchase 300 day-old chicks of any high-laying strain. Any of the five Regional Poultry Farms established by the Government of India at Delhi Cantonment, Kamlahi (Simla), Bhubaneswar (Orissa), Aarey Milk Colony (Bombay) and Hasserghata (Bangalore) can supply you with superior quality day-olds for starting your business. White Leghorn and Rhode Island Reds should be your choice for the production of eggs.

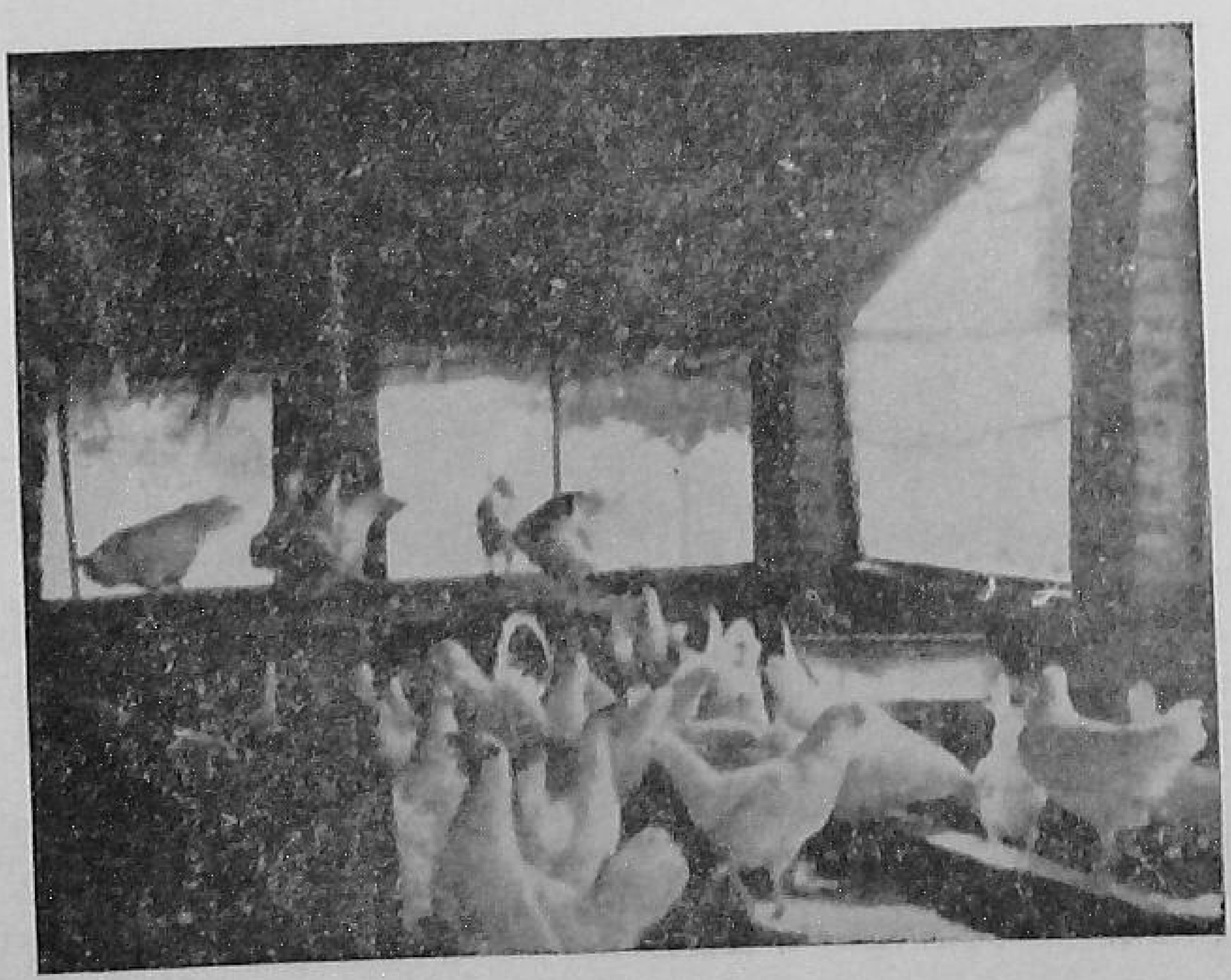
It's cheaper BY THE HUNDRED

Your 100-bird flock will pay you well if you keep in mind the following essential things :

1. Keep birds of only good quality.
2. Follow good management practices which include :
   * Proper housing to give the best comfort to the birds and to protect them from extremes of weather, thieves and enemies.
   * Feeding with properly balanced feeds and clean and wholesome water in sufficient quantities.
   * Timely protection from diseases.
   * Timely culling out of unproductive birds.
3. Keep down expenses on labour by keeping the birds in confinement. You can boost up your income by taking the following steps :
   * Producing clean eggs.
   * Storing and marketing the eggs properly and thus insuring against damage or deterioration in quality.
   * Catching a good market for the eggs and surplus birds.

Economics of a 100-layer unit with both these breeds along with a broad outline of the programme of work are given here.

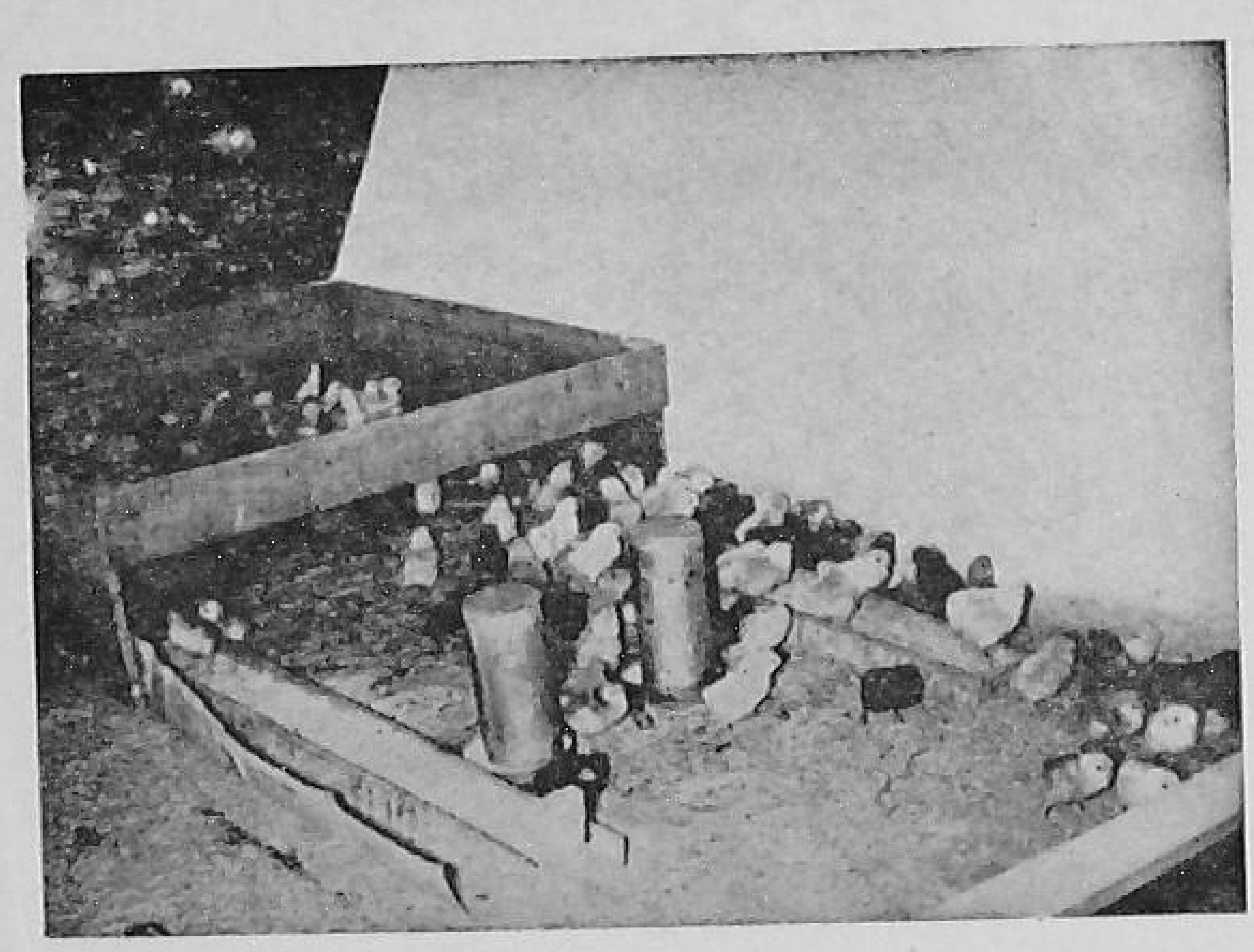
White Leghorn Birds



WHAT TO SPEND ON AND TO EXPECT FROM A 100-LAYER UNIT OF WHITE LEGHORNS

	Expenditure	Income
	Rs. nP.	Rs. nP.
Purchase of 300 day-old chicks		
Cost of chicks = Re. 1 per chick ..	300·00	
Rearing chicks for 12 weeks		
Cost of food consumption = 7·5 pounds per chicken Towards the cost of 2,250 lb of feed = Rs. 15 per 100 lb (7·5 pounds of feed per chicken) ..	337·50	
(Mortality : 20 chickens, 10 males and 10 females)		
Selling 120 cockerels = Rs. 1·50 nP. per bird ..		180·00
Rearing 140 pullets and 20 cockerels to 24 weeks of age		
Towards the cost of 2,560 lb of feed = Rs. 15 per 100 lb (16 lb per chick)	384·00	
Selling 32 females and 8 males		
Sale proceeds at Rs. 5 per pullet and Rs. 3 per cockerel		184·00
Keeping 100 females —10 males for one year		
Towards the cost of food consumption = 80 lb per bird—		
Cost of 8,800 lb of feed = Rs. 15 per 100 lb ..	1,320·00	
Selling 16,000 eggs (160 eggs per hen per year)		
=Rs. 20 per 100 eggs, and		3,200.00
90 birds at the end of the year = Rs. 4 per bird ..		360·00
Miscellaneous expenditure including labour and depreciation on housing	500·00	
Miscellaneous sales e.g. manure		25·00
TOTAL ..	2,841·50	3,949·00

Rhode Island Red Birds



Small chicks with their foster mother

A cheap but comfortable house for laying hens

..AND WITH A 100-LAYER UNIT OF RHODE ISLAND REDS

	Expenditure	Income
	Rs. nP.	Rs. nP.
Purchase of 300 *day-old chicks*		
Cost of chicks = Re. 1 per chicken	300·00	
Rearing these chicks to 12 *weeks of age*		
Cost of 2,640 lb of feed = Rs. 15 per 100 lb (8·8 lb per chicken)	396·00	
Mortality of 20 chicks (10 males and 10 females)		
Selling 120 *cockerels*		
Sale proceeds of 120 cockerels = Rs. 2 per bird ..		240·00
Rearing 140 *pullets and* 20 *cockerels to* 24 *weeks of age*		
Cost of 3,200 lb of feed = Rs. 15 per 100 lb (20 lb per chick)	480·00	
Selling 32 *females and* 8 *males*		
Sale proceeds of birds at Rs. 6 per pullet and Rs. 4 per cockerel		224·00
Keeping 100 *females* —10 *males for one year*		
Towards the cost of 9,900 lb of feed = Rs. 15 per 100 lb (90 lb per bird) ..	1,485·00	
Selling 16,000 *Eggs* (160 eggs per hen per year)		
Sale proceeds of 16,000 eggs = Rs. 20 per 100 eggs ..		3,200·00
Selling 90 *birds at the end of the year*		
Sale proceeds of 90 birds = Rs. 5 per bird		450·00
Miscellaneous expenditure including labour and depreciation on housing	500·00	
Miscellaneous sales e.g. manure		25·00
TOTAL ..	3,161·00	4,139·00

The Andhra Pradesh Farmers' FERTILIZER GUIDE

Here is a ready guide of fertilizer recommendations for the crops the Andhra Pradesh farmers raise.

Crop	Dose Fertilizer/Acre			Fertilizer Mixture applied at planting time		Remarks
	Nitrogen lb	Phosphoric acid lb	Potash lb	lb	Grade	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
PADDY						
(*a*) Coastal Andhra alluviums ..	30 (Kg. 14)	15 (Kg.7)	—	150 (Kg.68)	10-10-0	15 lb Nitrogen (N) as top-dressing.
(*i*) Normal Areas						
(*ii*) Phosphate deficient areas	30 (Kg.14)	30 (Kg.14)	—	250 (Kg.114)	6-2-0	Do.
(*b*) Chittoor, Nellore, Anantapur, Cuddapah Districts	30 (Kg.14)	30 (Kg.14)	30 (Kg. 14)	300 (Kg.136)	5-10-10	Do.
(*c*) West Godavari District (Package Scheme) 1st Crop	20 (Kg.9)	20 (Kg.9)	20 (Kg.9)	200 (Kg.91)	5-10-10	Additional 10 lb Nitrogen dressing wherever needed.
2nd Crop Sunnhemp area ..	40 (Kg.18)	20 (Kg.9)	20 (Kg.9)	250 (Kg.114)	8-8-8	20 lb N. given as top-dressing
Murugudamu area ..	40 (Kg.18)	40 (Kg.18)	20 (Kg.9)	333 (Kg.151)	6-12-6	Do.
Telangana chalka soils *Abi* ..	60 (Kg.27)	30 (Kg.27)	—	300 (Kg.14)	10-10-0	30 lb N. as top-dressing
Tabi ..	45 (Kg.21)	22·5 (Kg.10)	—	225 (Kg.102)	10-10-0	22·5 lb N. given as top-dressing
Black soils *Abi* ..	60 (Kg.27)	45 (Kg.21)	—	450 (Kg.205)	10-10-0	15 lb N. as top-dressing
Tabi ..	45 (Kg.21)	30 (Kg.14)	—	300 (Kg.136)	10-10-0	15 lb N as top-dressing
Dry Paddy	20 (Kg.9)	20 (Kg.9)	—	220 (Kg.91)	10-10-0	20 lb N. given as top-dressing, whenever necessary.

(1)		(2)	(3)	(4)	(5)	(6)	(7)
RAGI							
Irrigated		20 (Kg.9)	20 (Kg.9)	20 (Kg.9)	250(Kg.114)	8-8-8	In Srikakulam area an additional 20 lb N. application as top-dressing.
*Rain-fed		20 (Kg.9)	10 (Kg.5)	—	166 (Kg. 75)	12-6-0	
BAJRA, MAIZE, SORGHUM, etc. ..		20 (Kg.9)	20 (Kg.9)	20 (Kg.9)	250 (Kg.114)	8-8-8	20 lb N. given as top-dressing, whenever necessary.
TOBACCO I	Virginia	20 (Kg.9)	40 (Kg.18)	20 (Kg.9)	333 (Kg.151)	6-12-6	
VIRGINIA II	.. ..	20 (Kg.9)	60 (Kg.27)	40 (Kg.18)	500 (Kg.227)	4-12-8	
TOBACCO	Natu	40 (Kg.18)	40 (Kg.18)	40 (Kg.18)	500 (Kg.227)	8-8-8	
SUGARCANE	Rayalaseema Chittoor ..	175 (Kg. 80)	50 (Kg.23)	50 (Kg.23)	500 (Kg.227)	5-10-10	150 lb N. in two doses 40 (2) 90 days at the time of earthing up.
	Circars	150 (Kg.68)	50 (Kg.23)	—	500 (Kg.227)	10-10-0	100 lb N. given as top-dressing.
	Telangana						
	Eksall	225 (Kg.102)	50 (Kg.23)	50 (Kg.23)	500 (Kg.227)	5-10-10	200 lb N. as top-dressing
	Adsali	300 (Kg.136)	100 (Kg.45)	100 (Kg.45)	1,000(Kg.455)	5-10-10	250 lb N. Do.
COTTON		40 (Kg. 18)	20 (Kg. 9)	—	200(Kg.91)	10-10-0	20 lb N. Do.
		40 (Kg. 18)	40 (Kg. 18)	—	333 (Kg.151)	6-12-0	20 lb N. Do.
		40 (Kg. 18)	20 (Kg. 9)	20 (Kg. 9)	250 (Kg.114)	8-8-8	20 lb N. Do.
GROUNDNUT	Irrigated	15 (Kg.7)	30 (Kg. 13)	30 (Kg. 13)	300(Kg.136)	5-10-10	—
	*Rain-fed	10 (Kg. 5)	20 (Kg. 9)	20 (Kg. 9)	200 (Kg. 91)	5-10-10	—

*Fertilizers are recommended generally in areas where minimum rainfall is 27″.

A GOOD GREEN MANURE FOR MANGO

By
P. B. SRIRAMACHANDRA
Gram Sevak Training Centre, Samalkot, Andhra Pradesh

MOST orchardists neglect to give their mango gardens the attention they deserve. They follow no proper manurial or cultural practices. This, in spite of the fact that they normally plant mango in ordinarily poor soils, knowing fully well that mango can be a highly paying crop.

A mango garden soil, already poor, is made poorer further because of the exposure to the sun and rain and weed growth which eat away what little plant foods there are in the soil.

A good means of improving the fertility of the mango garden soil is the growing of a green manure crop. Among these green manures is *Indigofera hirsuta,* a small bushy legume with more of leaf and fairly fleshy stems which has been found highly suitable for the gardens. The leaves and stem decompose very easily when turned under. A scanty rainfall or a poor soil condition does not bother *Indigofera.* It will still come up and grow four to six feet high. Sow it in June-July, conveniently making use of the rain water during this season and in October-November you have enough green manure to plough in.

On an average, *Indigofera* produces 6,000 to 8,000 pounds of green leaf per acre. Allowed to seed, it gives an average of 600 pounds of seed per acre. Left alone, the crop becomes self-sown. It is not eaten by cattle, sheep or goats.

Indigofera is not only a good green manure crop for your mango garden, but also a cover crop. It protects the soil from erosion and helps conserve moisture. It will not allow bad weeds like nut grass or *doob* grass to come up.

PIGS GROW FASTER THAN YOU THINK

By
HARBANS SINGH
Animal Husbandry Specialist
Directorate of Extension, New Delhi

THERE is one good thing about pigs that pleases pig-growers—they grow fast! They multiply fast too, which means that if you raise pigs, you invest but little, and reap good profits and quickly too.

Pigs are cheap to raise. They can make full use of farm and other wastes and convert them into meat of a high food value, which has good demand and good market. Wastes from slaughter houses and by-products from creameries provide cheap but very good feed for your pigs. Pig-meat as ham, bacon or sausages is tasty food.

The ordinary village pig, small in size, is a slow grower and produces small litters. It is also a poor producer of ham and bacon, and its pork is of poor quality.

But with a good breed and proper care, you can make pig-rearing pay many times more than at present.

You can improve your village pigs by 'upgrading' them with a boar of an imported breed. The Large White Yorkshire, the Middle White Yorkshire and Berkshire are the suitable breeds you should choose from. This won't cost you much, but you will be amazed with the results.

The Large White Yorkshire produces good bacon. The Danish and Irish bacons are produced mostly from this breed. It grows fast and gives very large-sized litters. A mature boar weighs from 650 to 900 pounds, and a sow from 500 to 700 pounds.

The Middle White Yorkshire is a hardy, early-maturing breed. It takes to our village conditions better than any other imported breed and hence is used for grading up our village stock to a great extent. A full-grown boar of this breed, weighs about 550 to 750 pounds, while the sow weighs 400 to 600 pounds.

The Berkshire is a medium-sized breed, more popular in the South. It usually carries a comparatively high proportion of lean meat, but is not as suitable for the manufacture of piggery products,

A Middle White sow with her young ones.

especially bacon, as the other breeds. Full-grown boars weigh from 600 to 850 pounds, while the weight of the sows varies from 450 to 650 pounds.

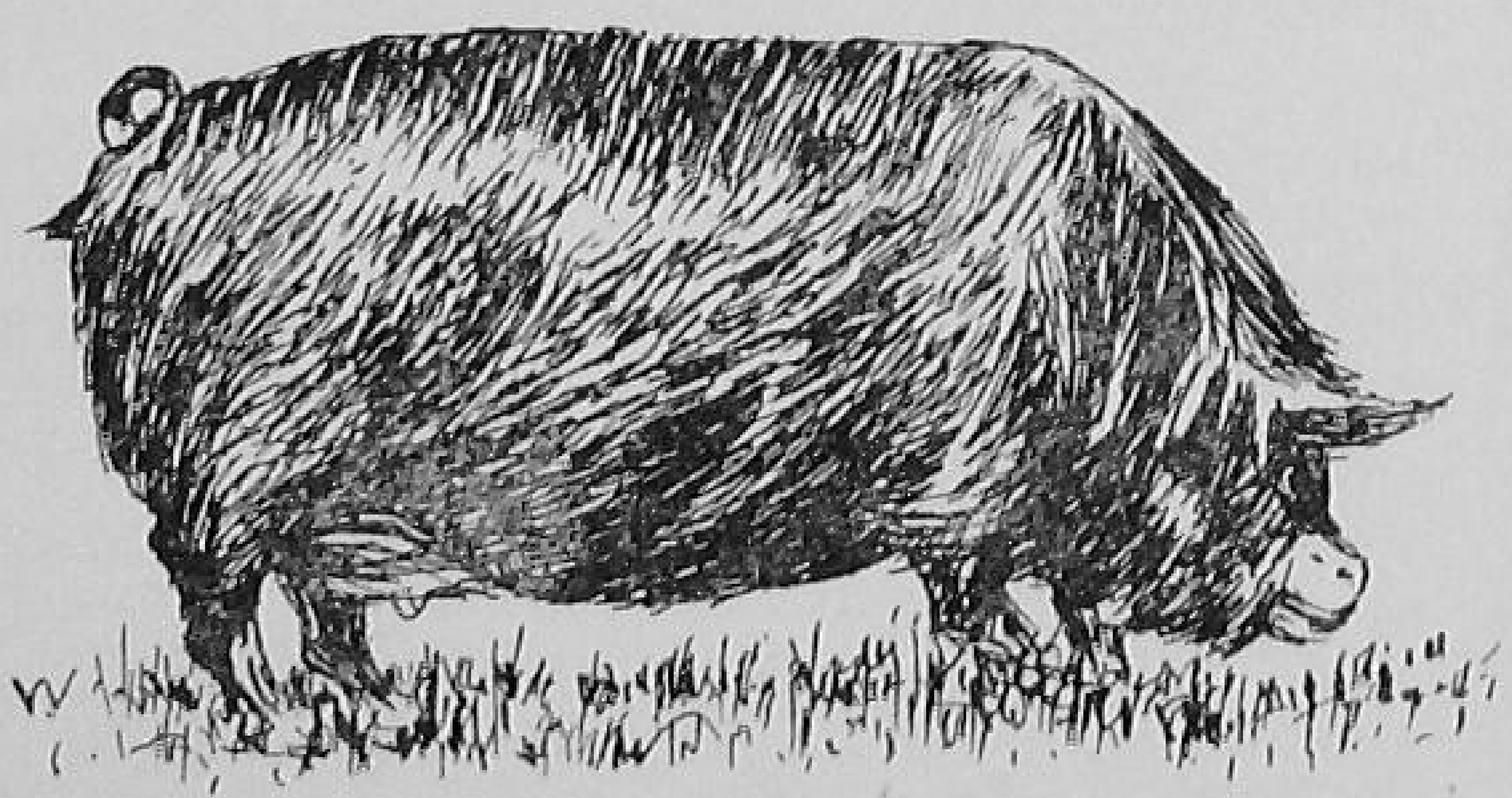
PIGS LIKE IT COOL

To keep pigs happy, house them properly and protect them from too much of heat, rain or cold. This does not mean that you should spend on a costly pen. You need only make a pen, so that the animals keep good health. Pigs do not like overcrowding nor damp houses. Hence, select a site for housing which is at a higher level than the surroundings, so that there is always proper drainage. Have the floor and feeding troughs such as can be easily cleaned.

Have an open yard for each pen, and some natural shade where the animals can move about freely. During hot weather, provide small *pucca* wallows containing water, about 8 to 10 inches deep, in the paddocks to keep the pigs cool.

The farrowing pen should be comfortable, and connected with open yards for the sow and piglings to move about freely.

Pigs need plenty of exercise to grow up healthy and well. Allow the animals to run about in the open paddocks, or take them to pastures for some time everyday. However, give limited exercise to fattening pigs.



Berkshire

THE BOAR YOU SELECT

The boar you select for breeding should be strong and masculine. The body should be of good length. The boar should have no physical defects and both the testicles should be palpable in the scrotum.

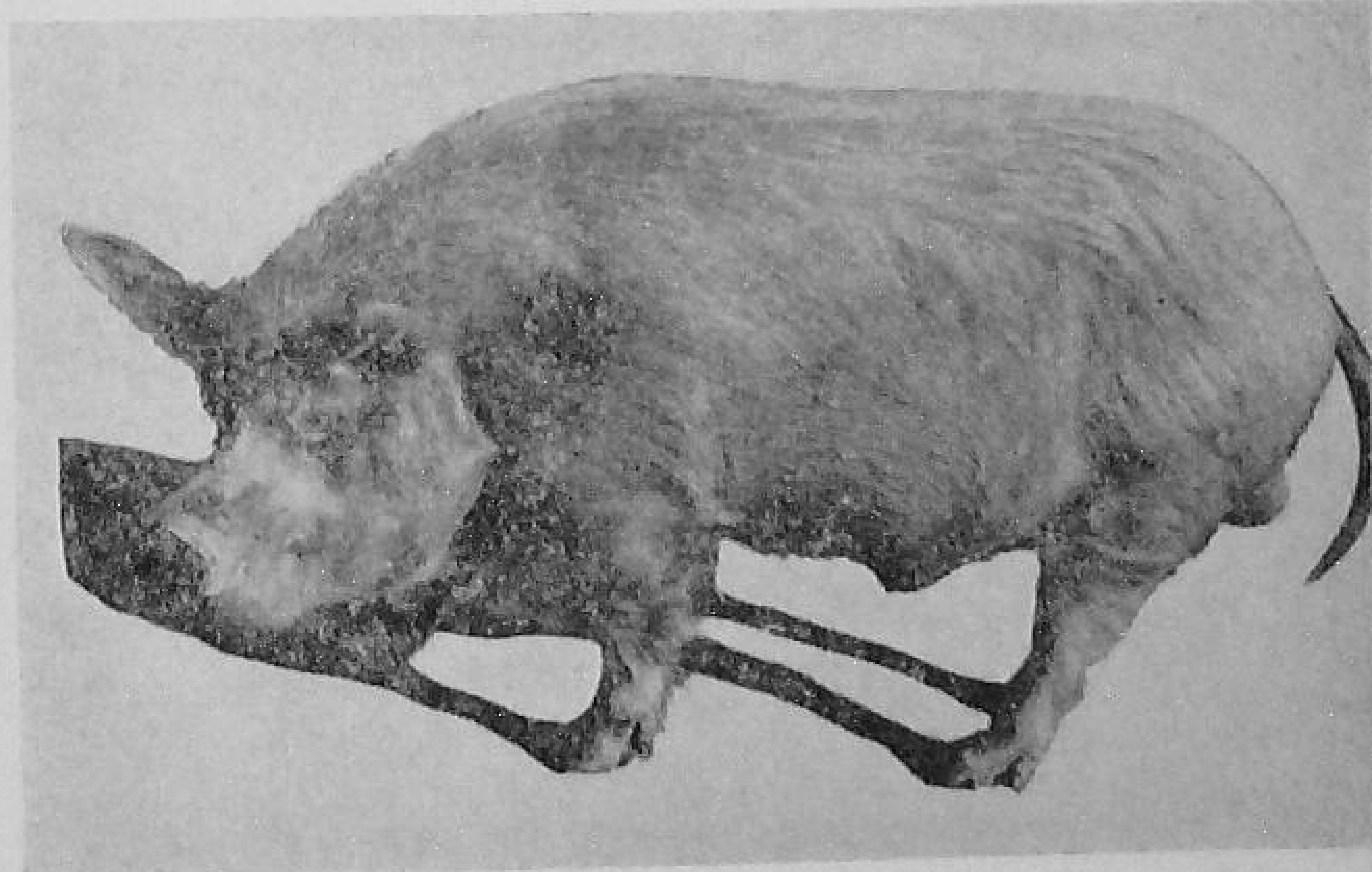
A young boar, if properly fed and looked after, is generally fit for service when it is about eight months old. Use it sparingly until it is a year old. Do not allow it to serve more than one sow in a day. If put to heavy strain for a long time, it may lose condition, and produce weak and smaller litters. A boar, if properly looked after, will be good for service till it is about six years of age.

To keep a boar in health and vigour, avoid overfeeding it. Also provide a regular supply of green feed and reasonable amount of exercise. Improper feeding and bad management sometimes make the boar sterile.

Do not allow the boar to run with the sows, as it will make the boar exhaust itself unduly. When the sows come into season, allow the boar to serve them once. A boar's first service after an interval of a month or more may not be fertile, and in such cases, a repeat service may be necessary.

A WORD ABOUT THE SOW

Select breeding sows with great care. The sow to be a good breeder, should be long and deep in body, and should have light shoulders. The sow should be of good feminine appearance and should not have thick, coarse head and ears. She should have proper mammary development with 12 to 14 sound teats, evenly distributed on both sides of the belly. Sows which have defective teats and are poor milkers should not be selected for breeding. Breeding sows should have a quiet disposition. Nervous and irritable sows are seldom good mothers.



Large White Yorkshire

The value of a breeding sow is determined by the litters she rears. When in good health and growth, she should be able to bring about a litter of fair size. Generally speaking, a litter in which the piglings are uniform in size pays off better than the one of the same weight consisting of piglings of varying sizes.

Upgraded piglets—they are certainly better than the ordinary ones

You may breed a well-looked after gilt for the first time at about nine months. Avoid breeding at too early an age.

There are two breeding seasons for pigs, August-September and February-March. The gilt, when she is about six months of age, shows the signs of the first heat. This recurs at intervals of 21 or 22 days during the breeding season. The heat period usually lasts for two or three days, being longer in the sow than in the gilt. Satisfactory service is best obtained on the second day of heat rather than in the early stages. The usual signs of heat are restlessness, heavy or enlarged genital opening commonly accompanied by a light mucus discharge, frequent mounting on other sows and occasionally making peculiar loud grunting sounds.

The breeding sow should be neither too fat nor run down in condition. Sows that get unduly fat are very likely to fail to become pregnant. In such cases, it is helpful to keep them on a low standard of feeding, preferably keeping them mostly on grazing. Sows in poor health are usually irregular in breeding and produce smaller litters and of poor health. Gilts generally have a tendency to put on fat when they are about eight or nine months old. Reduce the concentrate mixture for the breeding sows, if necessary, during this period.

Pregnancy or gestation period varies from 112 to 116 days with the average at 113 days. With proper management and good feeding, you can expect two litters in a year.

CARE AT FARROWING

About 10 to 15 days before the expected date of farrowing, remove the sow to a separate pen. Provide a clean bedding of dry straw for the sows. Farrowing usually takes between two and six hours. Better not interfere with the process of farrowing. However, the necessary veterinary aid should be available at hand in case of any difficulty. Remove the afterbirth and other cleansings immediately and bury or burn them to prevent the sow from eating them. Leave the sow undisturbed after farrowing.

Put a ligature on the naval cord of the young one an inch from the body, and cut off the cord half inch below the ligature and apply tincture of iodine.

Approximately half the losses of young piglets take place during the first three days of their birth. Take necessary precautions, therefore, to protect the young ones. Bedding of dry straw should be provided during the winter season.

Pigs are weaned when about eight to ten weeks of age. Normally, the first heat period after farrowing occurs between five and seven days after the litter is weaned when the sow should be served.

CASTRATION

Get all surplus male piglings castrated when about four to six weeks old. Castration is necessary to prevent the sexual development of the boars, and the coarse bodies that they develop. It also helps prevent the development of strong flavour the pork of such animals get. Better castrate the pigs early to avoid unnecessary shock to their system later. Avoid castrating in warm weather, especially during fly time. Give the pens a litter of clean straw before the operation is performed. Keep the piglets on a light feed for about 12 hours before castration and do not disturb them after the operation for the rest of the day.

If you follow these things in raising pigs you will reap more profits than you thought you could.

VEGETABLES that turn tastier

The vegetables seem tastier if you grow them yourselves. Ever tried it?

By
D. MUTHUSWAMY

"I AM sure you can count up a hundred reasons why one should have a kitchen-garden of one's own," said Shri Hari Dev Kundra, an employee of the Planning Commission in New Delhi. "But I took up kitchen-gardening for two sound reasons."

Shri Kundra, who lives in Vinaynagar, was working in his little kitchen-garden, when I was taking a stroll in the January afternoon sun. Kundra's eldest boy was watering the tomato plot. Kundra along with his second son was weeding the vegetables.

"I want my backyard to do its bit to help the front line—that is the first reason. Holding the price line of foodstuffs is everybody's job, and mine too. If I don't buy what I need from the market, but produce it myself, to that extent I reduce the demand on the market and help keep prices down. Many citizens like me can keep small kitchen-gardens. The sum total of each one's effort, however small it may be, will be enormous," explained Kundra.

I admired the big spirit of this kitchen-gardener.

"If the food you eat comes from your garden, grown with your own effort, I can assure you it gets an additional good taste. There is the aesthetic satisfaction in growing a good plant. This is the second reason that has been responsible for this garden. You see, in this little patch of a few square yards, all my vegetable requirements cannot be grown. Sometimes I do buy vegetables from the market. The market-bought vegetables are certainly not so delicious, I can assure you," Kundra gave me further information about his gardening activities.

"I see you have a small poultry-yard too," I remarked. "I want eggs for my children to make them grow healthy. Good eggs now cost twenty-five naye paise each. So I decided to have a few birds of my own," replied Kundra.

Kundra has one male bird and nine hens, five of them Leghorns. He gets on an average six to eight eggs daily.

Kundra's wife brought a few eggs for me to see. Good-sized ones. Kundra originally started with two birds, about a year ago. He spends something like ten rupees a month on the birds and gets about 150 eggs a month.

Turning back to his kitchen-garden, Kundra continued "It is surprising, what a little plot can provide from the point of view of a small home. I can have bananas and papaya for fruits also and a few flowers for worship and decoration," as he took me around the rose and hibiscus bushes.

During this summer, Kundra is having ribbed gourds. He will be able to exchange these for lady's fingers with his neighbour.

A few others in the neighbourhood have also caught the infectious desire for home gardening from him. "Among ourselves we can produce several vegetables for exchange, so that each of us can have one type each day in the week," said Kundra.

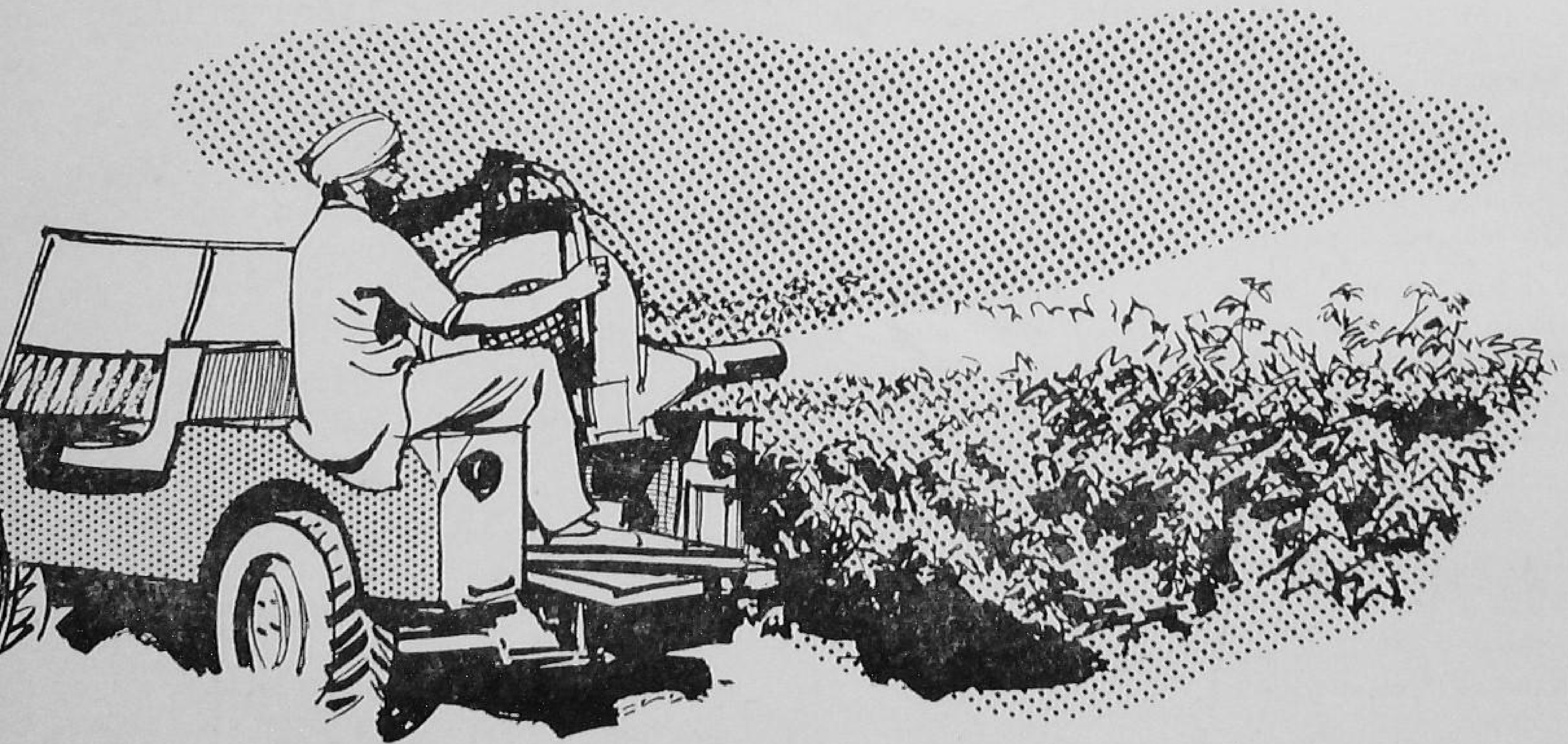
Our Top Cotton State Gets Package Deal

THIS SEASON, a Package Programme for cotton is going to be implemented in the Punjab.

The Punjab farmer today stands 'head and shoulders' above the farmers in all the other States of our country in getting good per-acre yield of cotton.

Cotton is the 'white gold' to Punjab farmers. From the lowly 44,000 acres under the crop in 1948, they spread it over to 102,000 acres by 1956. So did they do to their yield of cotton. The 17,000 bales of cotton produced in 1948 is a far cry from the 620,000 bales they produced in 1956! Today, the Punjab is the top producer of long staple cotton in the country, though only fifth in acreage.

Now, the Punjab is anxious that its farmers take a further step forward—take up their per-acre yields. The cotton Package Programme is designed to help them do just this.



AREA TO BE COVERED

During 1963-64, the Programme will cover 105 thousand acres under cotton in the five tehsils of Bhatinda, Ferozepur and Hissar Districts. The Blocks selected are in Kot Kapura of Bhatinda; Muketsar, Malout and Abohar tehsils of Ferozepur and Hansi; Hissar, Narnaul and Barwala of Hissar. By 1963-64, the area under Programme will increase to 180 thousand acres, and in 1964-65 to 255 thousand acres.

PACKAGE OF PRACTICES TO FOLLOW

The Programme brings with it a 'package of practices' for each cotton grower to follow.

1. *Use of certified seed of only recommended varieties.* Varieties *320-F* and *LL-54* are recommended for Muketsar, Fazilka and Faridkot tehsils, and *H-14* for Hansi and Hissar tehsils.

2. *Seed treatment.* Though the seed sold to the farmers will be treated with methyl bromide, yet the

farmers should treat the seeds with 'Agrosan' or 'Ceresan' before sowing to ensure freedom from pink bollworm and black-arm diseases.

3. *Sowing.* Sowing has to be completed by the end of April. No benefit of the Programme will be accorded to those who do not sow their crops before the 15th of May.

4. *Proper seed-rate.* The per-acre seed-rates of eight seers for *320-F* and *LL-54* varieties and 10 seers of *H-14* have been fixed. Farmers should soak the seed for 6 hours before sowing.

5. *Line sowing.* The crop should be sown in lines 2½ feet apart in the case of *320-F* and *LL-54* and 2 feet apart in the case of *H-14*. Sowing should be done with the help of a single-row cotton-drill.

6. *Roguing.* The crop should be rogued and thinned out when one month old, keeping the distance of one foot between plants.

7. *Fertilizer application.* Cotton sown after a leguminous crop like berseem, gram, *guara,* etc., should be given 150 kilograms of Kisan Khad per acre. But 200 kilograms of Kisan Khad per acre should be applied if it is sown after wheat.

8. *Intercultivation.* The crop should be hoed with *triphali* after each irrigation or rainfall till it has reached the flowering stage.

9. *Plant protection.* To save the crop from pests and diseases the following plant protection measures must be taken :

(i) Spraying of crop with 'Endrin' and copper oxychloride after two months of sowing. This will eliminate the attack of jassids and secondary infection of the black-arm disease.

(ii) Repetition of the above spray one month after the first spray.

(iii) Another spray with 'Endrin' alone after an interval of three weeks. This will control the jassids completely.

(iv) Fourth spray at a further interval of three or four weeks with 'Sevin' to check the bollworm attack.

THE MONEY PART

The cotton growers following above 'package of practices' in the Package Programme areas, will be provided with the following financial facilities :

(i) 25 per cent subsidy on the cost of seed.

(ii) 25 per cent subsidy on the cost of fungicides and pesticides.

(iii) 50 per cent subsidy for purchasing sprayers, etc.

(iv) 25 per cent subsidy for purchasing implements like single-row cotton drill, *triphali,* etc.

These facilities will be provided in the subsequent years also.

SPECIAL STAFF

To make this Programme a success, the staff for giving technical advice on the cultivation of cotton crop, on the spot, is also being largely strengthened. In addition to the existing Extension staff, seven Agricultural Inspectors and 35 Sub-Inspectors are being provided. Thus there will be one Agricultural Inspector for every three thousand acres to be covered under this Programme.

Special leaflets, posters, etc., are being issued for the benefit of the cotton growers. Other communication media like press, radio, etc., will also be used for acquainting the farmers with the technical knowledge involved in cotton raising.

With this Programme implemented, the Punjab expects to bag an additional 26,250 bales of cotton in the current year, 45,000 bales in '64-'65 and 63,750 bales in '65-'66.

Never had it SO GOOD!

That was the farmer's impression after he had tried the 'package of practices' on his rice crop

By
RAVI VARMA
District Agriculture Information Officer
Palghat, Kerala

FOUR THOUSAND POUNDS OF PADDY per acre from his 15-acre farm has made Ambat Sekhara Menon a proud and happy farmer. Menon who hails from the Package District of Palghat, Kerala, is confident he can better the record since he has now the key to better crop production.

Menon says he owes his success to the package of practices he adopted.

It started right from the seed. The local seed was replaced with the improved strain, *CO. 25,* ideal for the tract. The seed was treated with 'Ceresan' to avoid infection by seed-borne diseases.

Menon could apply green manure in a good measure as his compound is fenced with Glyricidia plants—a green manure shrub now popular in Kerala.

The recommended fertilizer dose for paddy in his area is 30 : 30 : 30 (NPK). Himself one of the directors of the local Service Cooperative Society, it was as much for Menon to convince his clients as himself the value of the right use of fertilizers. The Society stocked qui'e a variety of fertilizers like ammonium sulphate, factamphos, urea, superphosphate and muriate of potash. Menon gave a try to all fertilizers, of course in the recommended dose.

The crop came up well and as the Malayalam proverb goes, 'one could judge the yield from the sprout'.

A couple of preventive sprayings with 'Endrin' kept the insects away.

The fields with heavy ears and plumpy grains were a treat to watch.

Sekhara Menon who took up farming twelve years ago, says he never had it so good. And with a twinkle in his eyes, he adds "I WILL MAKE IT BETTER".

Shri S. K. Patil (right) presenting the Rashtra Kalash to Shri B. B. Singh

HIMACHAL PRADESH BAGS RASHTRA KALASH

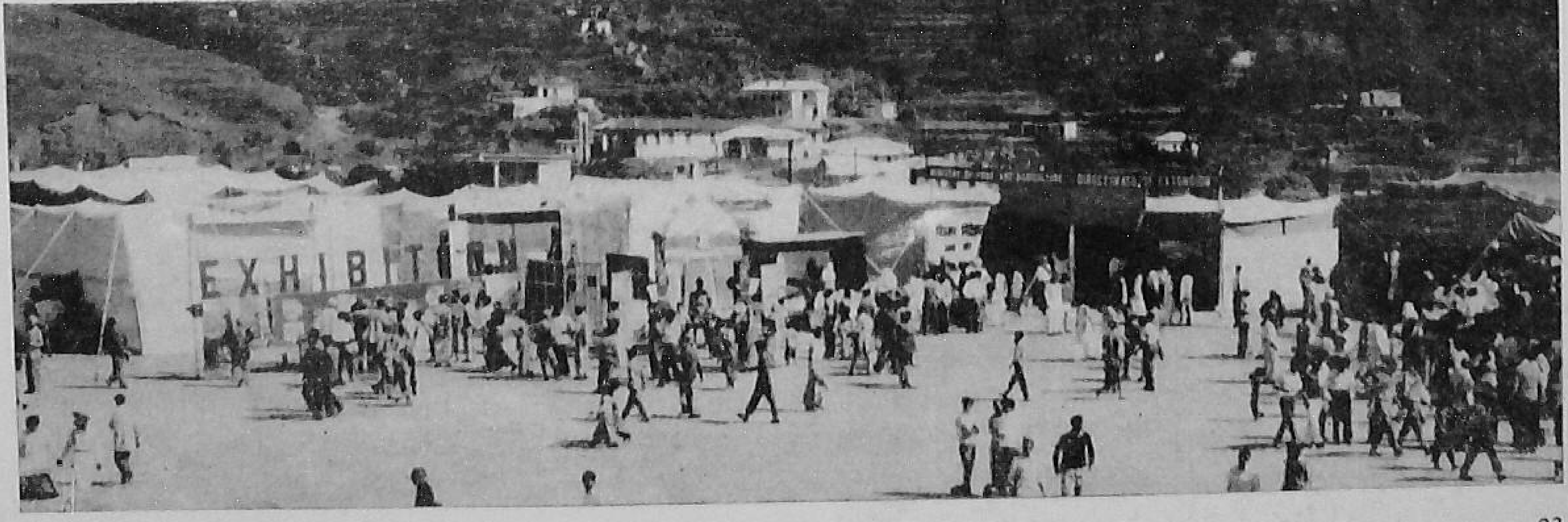
AT A SIMPLE function held at Municipal grounds in Solan, on the 13th April, 1963, the Union Minister for Food and Agriculture, Shri S. K. Patil presented Rashtra Kalash for the Kharif 1959-60 to the Lt. Governor of Himachal Pradesh, Shri B. B. Singh.

Himachal Pradesh also bagged the Rajya Kalash for having registered a 89 per cent increase in food-grain production in Chamba district—the highest in any district in the country. With the awards, went the Community Cash prizes of Rs. 50,000 (for the State) and three prizes of Rs. 15,000 (each to the three districts) for registering an increase of over 15 per cent over previous three years' average food-grain production.

Congratulating the farmers and the officials of the Agriculture Department of the State, Shri Patil said that Himachal Pradesh by registering a 30 per cent increase, had set an example for not only the hilly areas but also for the plains. The Union Minister said that only sustained efforts, imaginative planning and full utilization of all available resources could bring the desired results on our agricultural front.

Shri Patil went on to say that Himachal Pradesh had proved that it was wrong to imagine that hills

A view of the exhibition held at Solan to mark he winning of the Rashtra Kalash by HimachalP radesh



Better production through
SOIL CONSERVATION

THE HIGH priority soil conservation has been given in the Third Five Year Plan was stressed by Dr. Ram Subhag Singh, Minister for Agriculture, Government of India, when he addressed a large gathering of farmers on the occasion of the Fifth Farmers' Day celebrations of the Soil Conservation Research Centre in Sikandarpur near Dayalbagh, in Agra, recently.

Cautioning the farmers especially in the non-irrigated areas, where agriculture depended largely on rain, against the dangers of soil erosion, the Minister appealed to them to recognize the need to check the same well in time and prevent large areas of productive farm land being rendered less productive and even unfit for production.

Dr. Ram Subhag Singh pointed out that in the Third Plan it was expected to protect about 11 million acres of agricultural land with contour bunding and terracing, 50 million acres of dry farming and about 8 lakh acres with afforestation and pasture development. While exhorting farmers to cooperate with Government in implementing the scheme of soil conservation, the Minister disclosed that the proposed Extension service in soil conservation will assist them take up the work on a scientific basis.

Earlier, Dr. R. V. Tamhane, Soil Conservation Adviser to the Government of India, enumerated the various steps taken by the Government to implement afforestation, contour-cultivation, strip-cropping and other practices to not only stem any further damage to land but also to reclaim vast areas now rendered unproductive.

Shri Phadke, Soil Conservation Officer, Agra, spoke of the soil conservation demonstration in a plot of about 180 acres (belonging to Dayalbagh authorities) which was eroded and ravined. Even the first year's results indicated that after the plot had been properly treated with various soil and water conservation measures, it was possible to grow better and more remunerative crops with higher yields than before.

Where previously only *bajra* was being grown for cattle feed, it was now possible to grow crops like wheat, barley and mustard. An acre which yielded only Rs. 6 to 7 from bajra previously, now gave an income of Rs. 250 from other crops.

—SANDHU

HIMACHAL PRADESH BAGS RASHTRA KALASH (*Contd.*

could not produce enough foodgrains. He expressed the hope that other States would emulate the Himachal's example and thus make Indian agriculture a matter of pride and achievement.

The Lt. Governor Shri B. B. Singh thanking Shri Patil said that Himachal Pradesh had made progress not only in agriculture but also in road-building, horticulture and forests. The State had also done some pioneering work in evolving improved breeds, seeds and species suitable to conditions in the hills and is in a position to help other hilly regions.

—LAL

By

KANTIMATHI KUMAR

A ROMPER FROM AN OLD KAMIZ

WHEN YOUR girl's *kamiz* is old and worn out, don't throw it away. You can easily convert it into a nice little romper for your baby. Here is how you make the romper.

Measurements of the romper

Length 17″; Chest 22″; Shoulder width 9″; Sleeve length 5″; Sleeve band 8″; Seat 24″.

Old Kamiz. Length 40″. To fit 36″ bust size.

Fig. 1. A romper

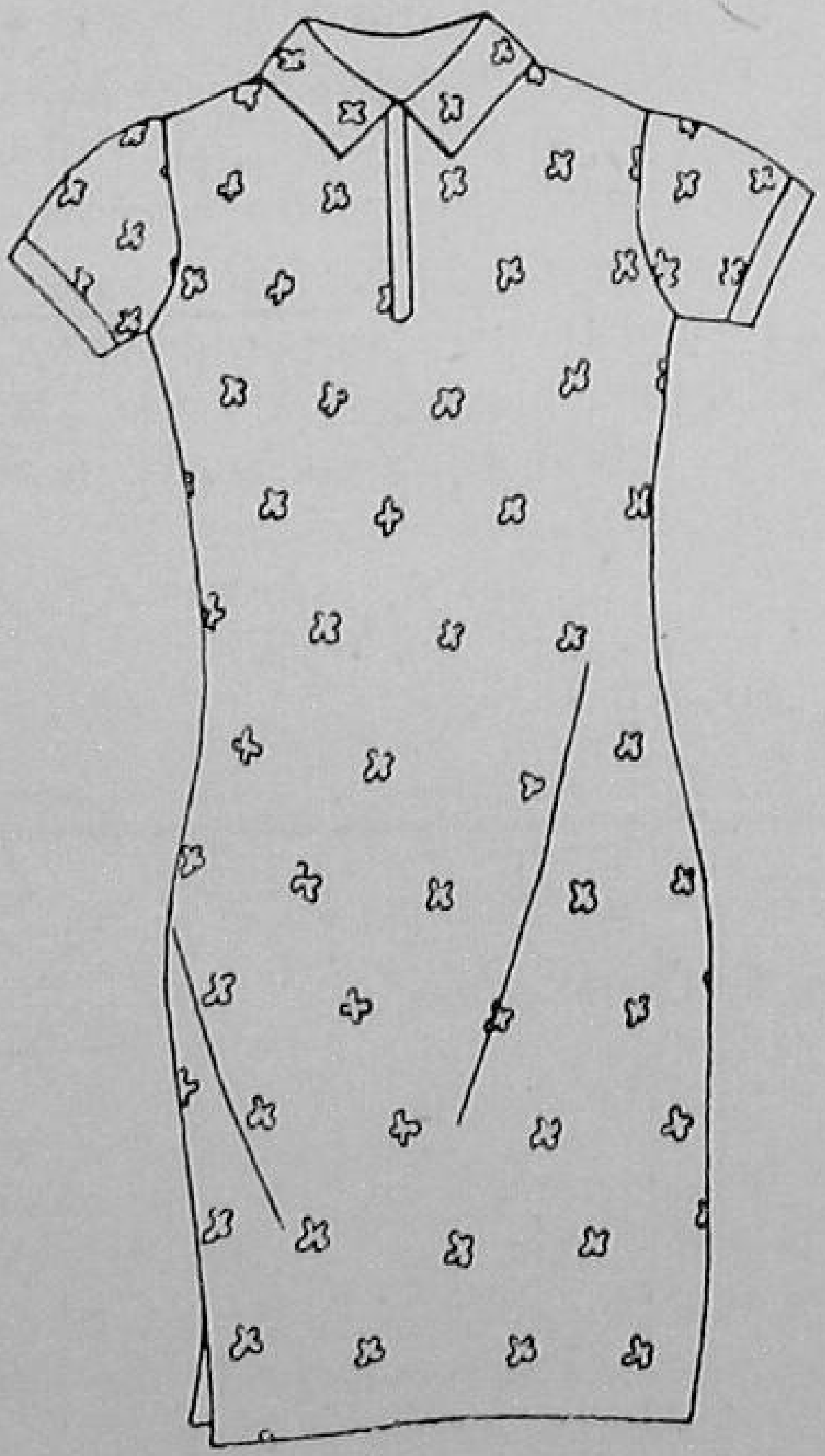


Fig. 2. An old kamiz

How to make the pattern pieces of the romper

NOTE : Key to diagrams.

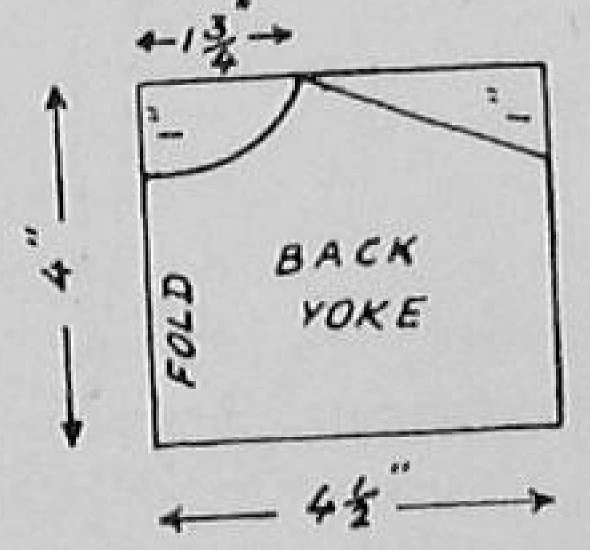
(1) Measurements are given within arrows (↔) or with the arrows pointing to the measured length. A few measurements are given with reference to alphabets.

(2) The thin line (—) denotes the edge of the paper taken for pattern making.

(3) The dash dot line (—.—.—) is used as a guide to draft curves etc.

(4) The thick line (—) denotes where to cut.

(5) The dotted line (. . . . . .) denotes where to cut after the first cutting is done.



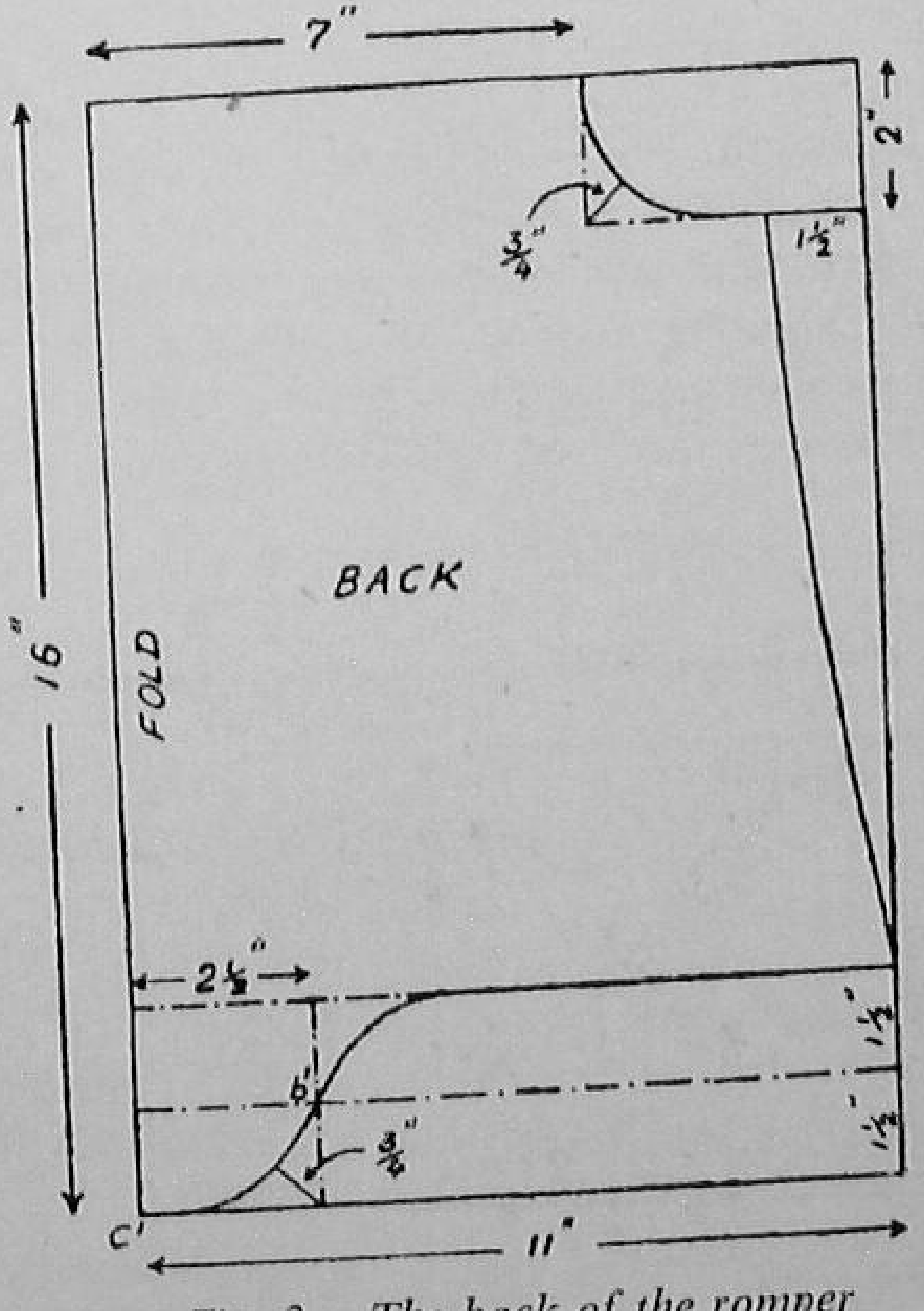


Fig. 3. The back of the romper

(6) Wherever the word 'fold' occurs, take double the width shown in the diagram and then fold the paper.

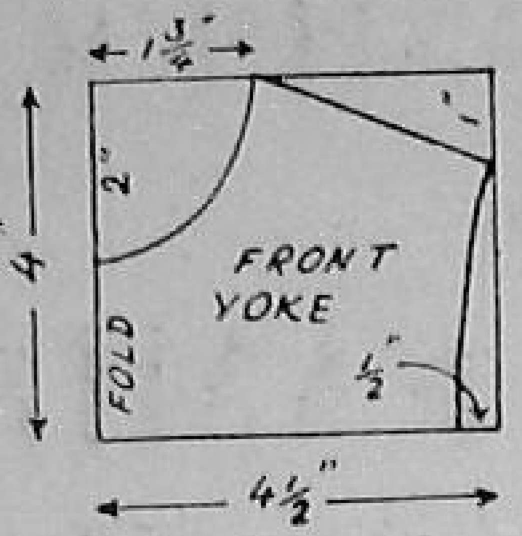
DRAFTING AND CUTTING

(a) Draft the back yoke, the lower portion of the back, the front yoke and the lower portion of the front according to Figures 3 and 4 and cut along the thick lines. Cut along the central fold of the front yoke. Note that the curves at the lower end of Fig. 3 and Fig. 4 are similar.

(b) Draft the sleeves and the collar according to Figures 5 and 6 and cut the pattern pieces. Prepare two pattern pieces of sleeves and collar. Note that the portion cut deeper at the sleeve-head is to be attached to the front armhole. Hence the right sleeve is to be differentiated from the left sleeve.

(c) For the sleeve bands, cut two pieces of paper, each 9″ long and 1¼″ wide.

(d) Cut the facing for the semi-circular button band at the lower end of the back, allowing ½″ extra material at the top for turning.



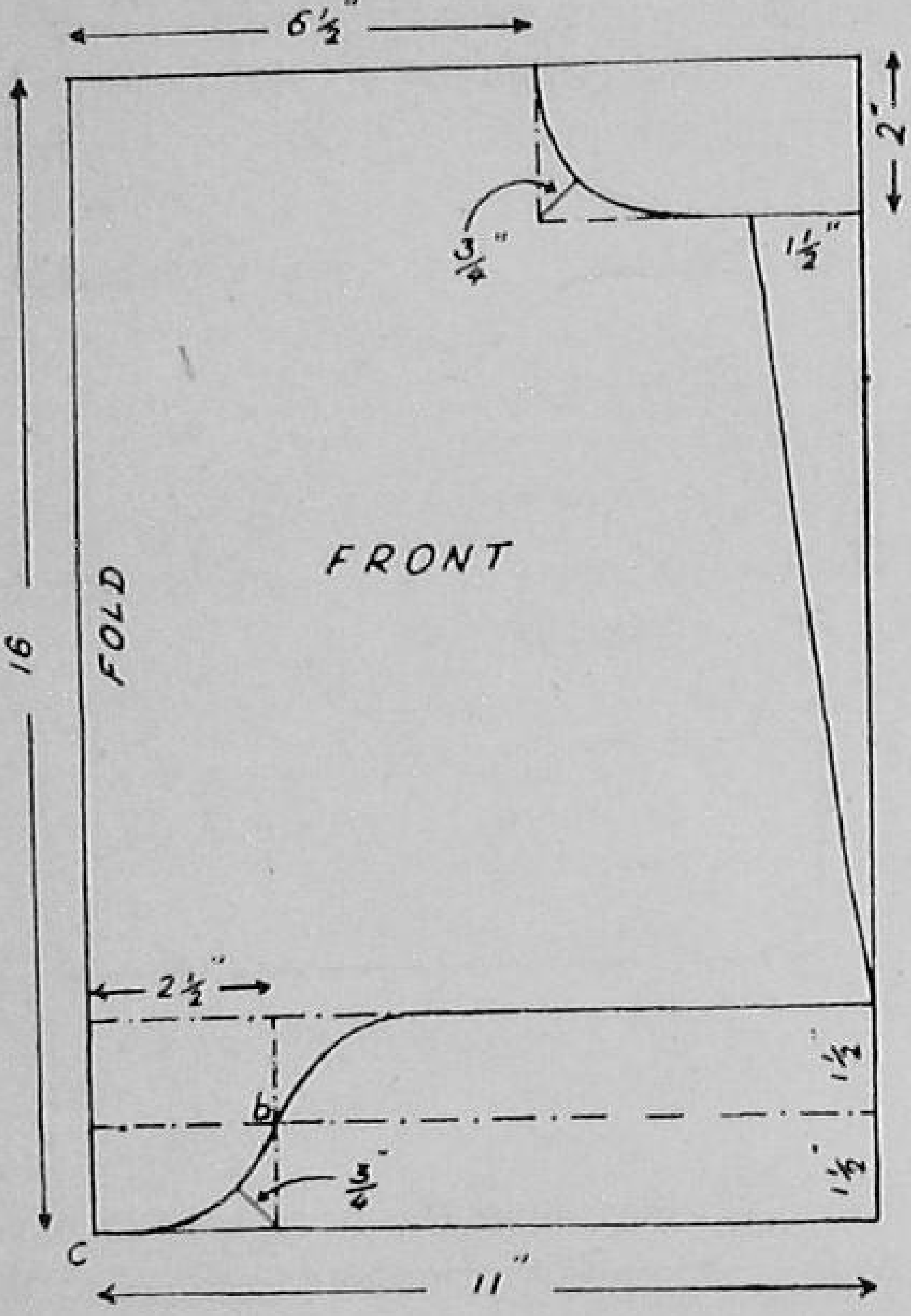


Fig. 4. The front of the romper

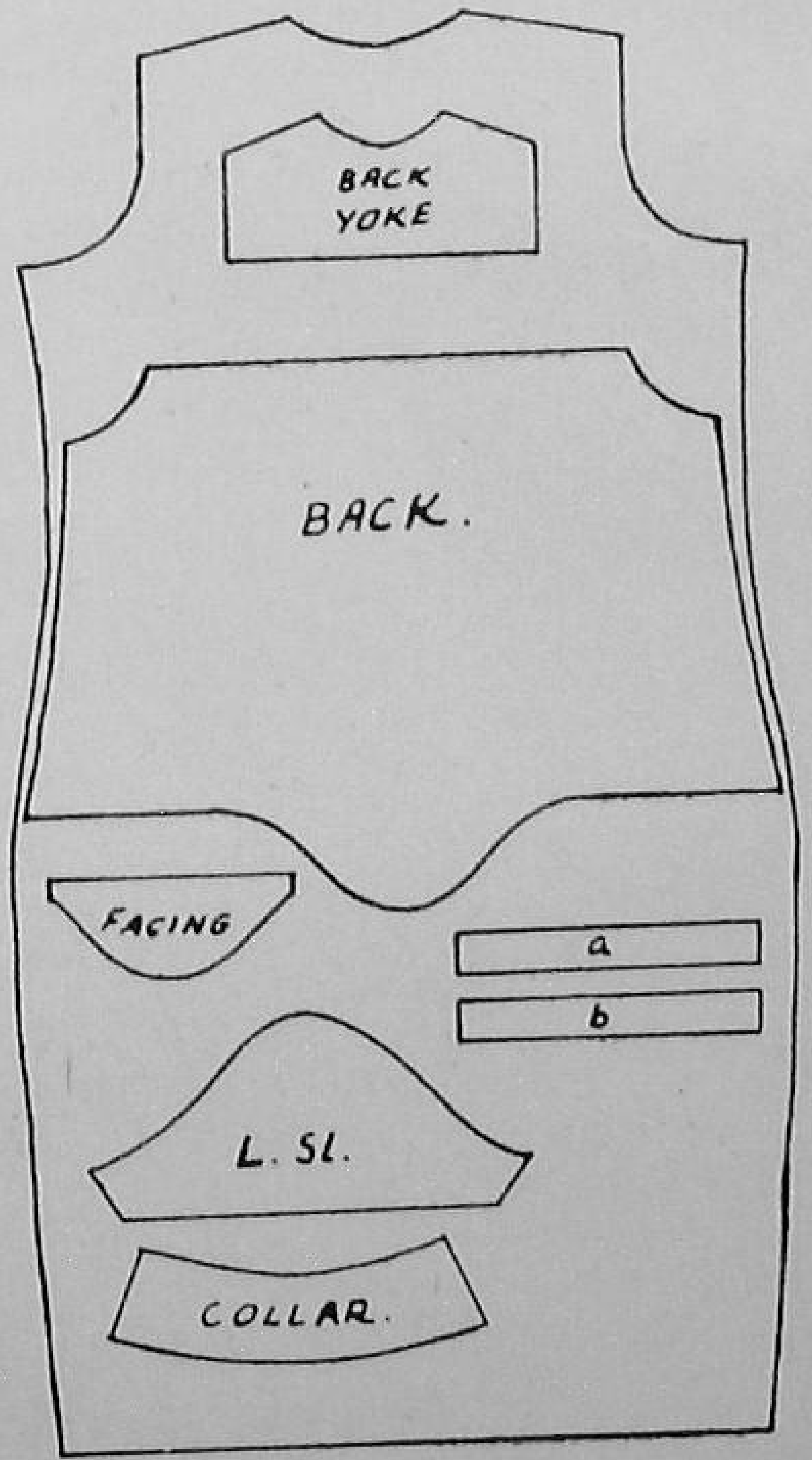


Fig. 7 a The back of the kamiz

Fig. 5. Sleeves

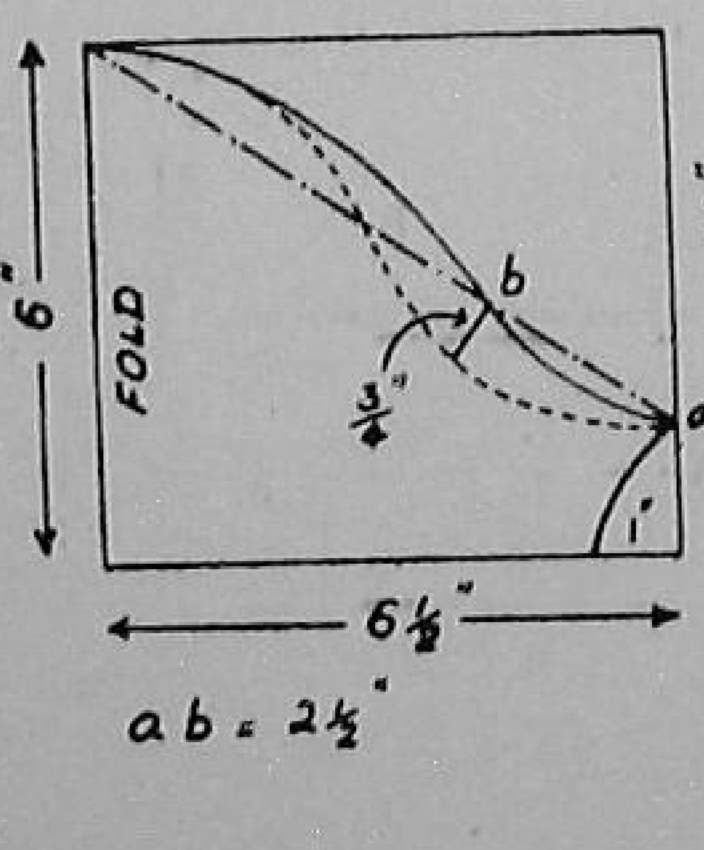
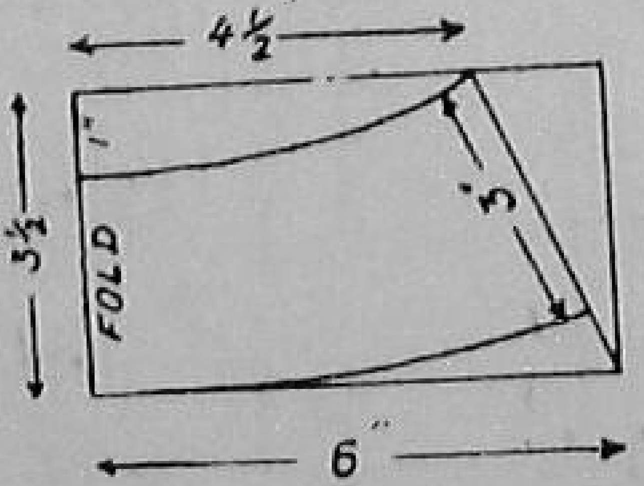


Fig. 6. Collar



How to prepare the old kamiz for the layout of the pattern pieces

Rip the neck band and the collar. Rip the armhole seams, the side seams and the shoulder seams and separate the back, the front and the sleeves from each other. Rip the darts and the lower hems. Iron the different pieces properly.

How to lay the pattern pieces on the different sections of the kamiz and cut out the pattern

In Figures 7 a and 7 b

R. Fr. Y	—	Right front yoke.
L. Fr. Y	—	Left front yoke.
R. Sl.	—	Right Sleeve.
L. Sl.	—	Left Sleeve.
a — b	—	Sleeve band.

Pin the pattern pieces of the romper to the back and the front of the *kamiz* as shown in Figures 7a and 7b and cut the pattern. Cut a slit 2″ long down the centre of the fold of the lower portion of the front from the top to form the continuation of the opening from the neck. The bias strips for the front opening and the leg openings are to be cut from the fabric left over.

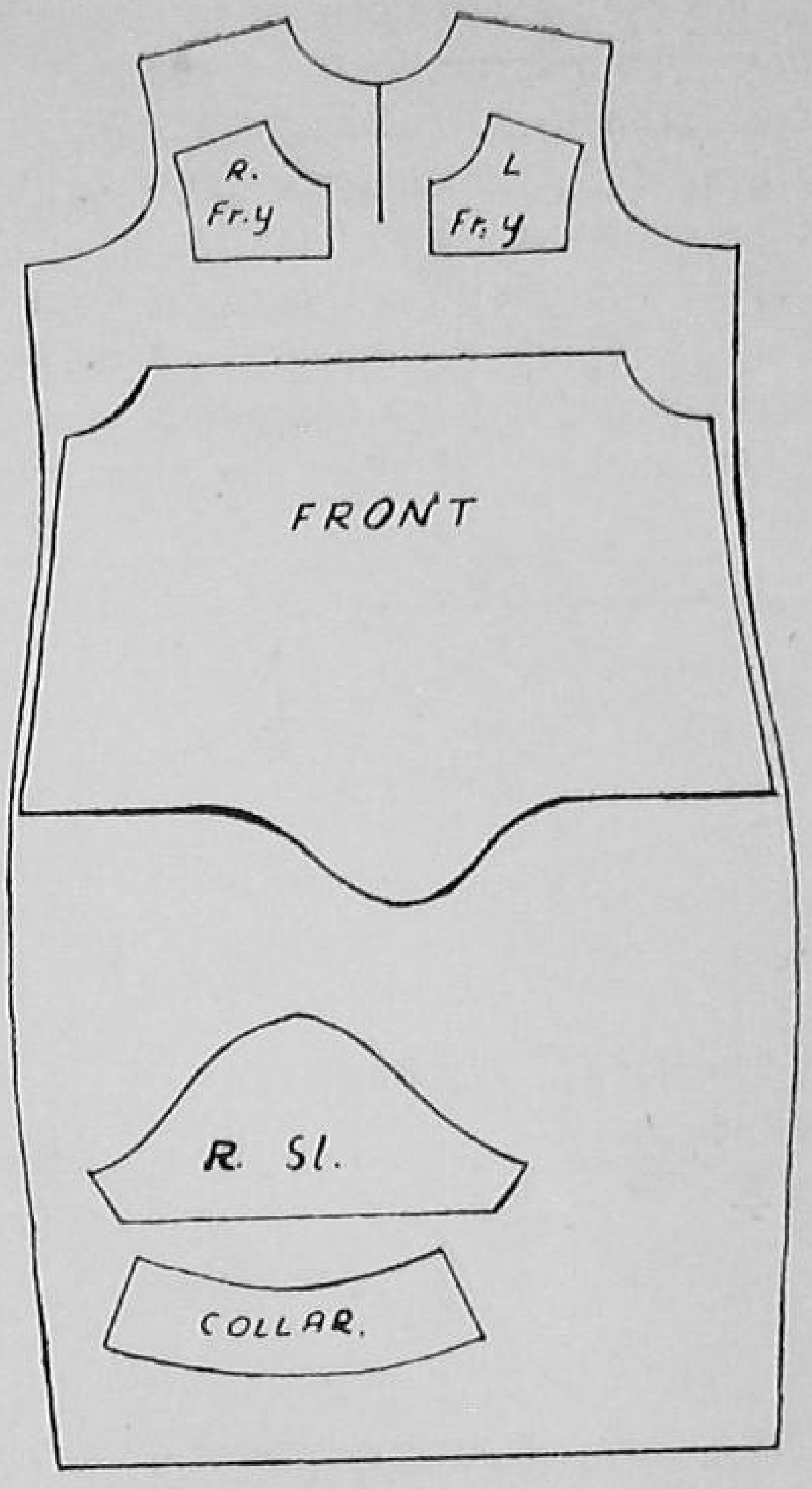
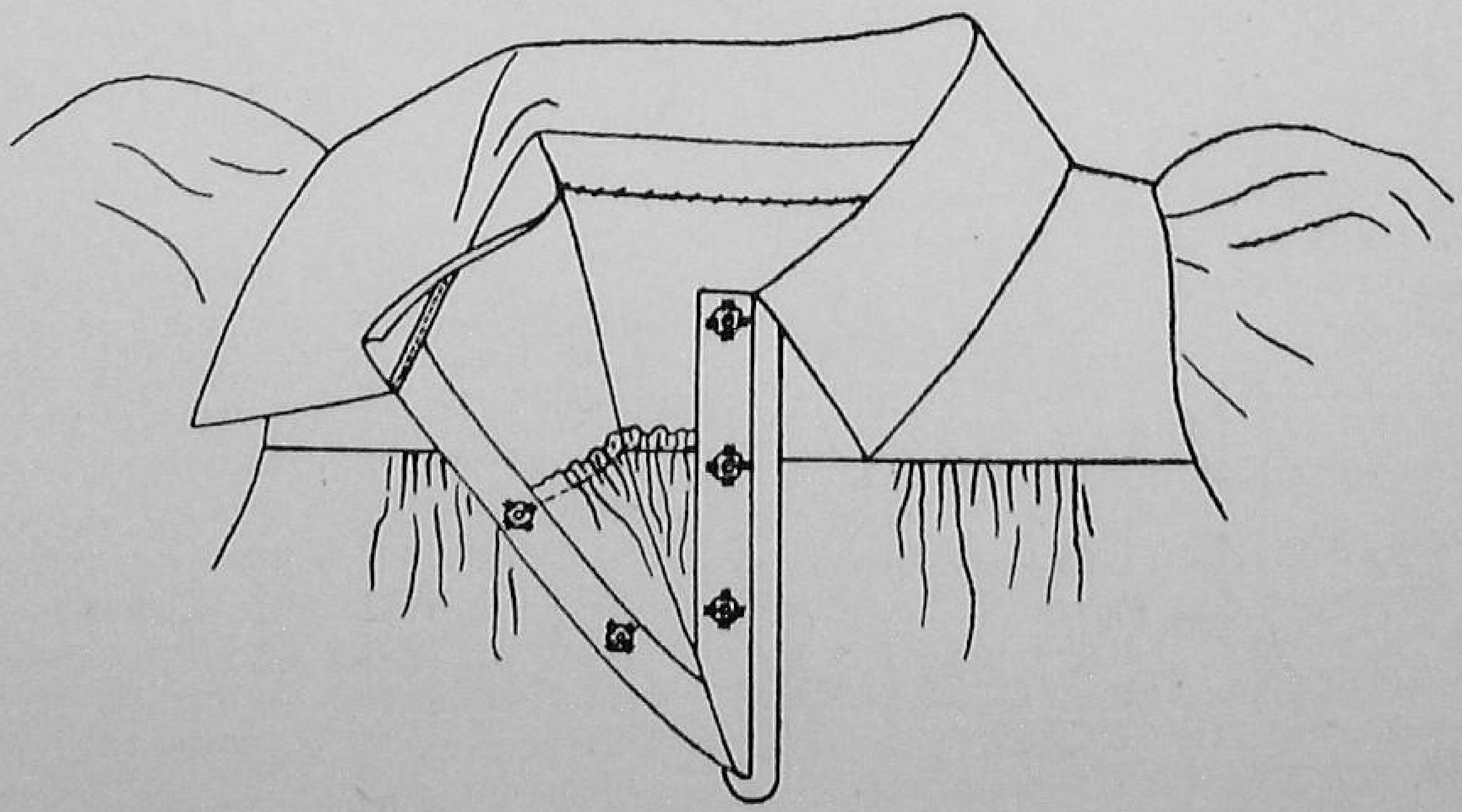


Fig. 7 b The front of the kamiz

How to make the romper

Gather the top of the lower portions of the romper to fit the lower ends of the yoke sections and join them to the respective yoke sections. Bind the edge of the front opening down the neck with a bias strip. (*See* Fig. 8). Make the shoulder seams and the side seams.

Fig. 8. Fixing button bands and collar



Face the leg openings from a to a' and b to b' with bias strips. Turn in by ¼″ the raw edge of the button wrap 'abc' of the front and baste (*See* Fig. 9). Face the button band a'b'c' of the back (*See* Fig. 10). Before machining the inner edge of the facing of a'b'c' at the back, insert the pieces of elastic of required length in the facings of the leg openings (*See* Figures 9 and 10). Secure the ends of the pieces of elastic firmly with a few stitches. Machine the inner end of a'b'c', the button band of the back. Fold the button wrap, abc, of the front over the line 'ab' and stitch it in position as indicated by the curve in dash dot line in Fig. 9. Place the back button band over the front one; mark the position of the buttons and stitch the required number of buttons.

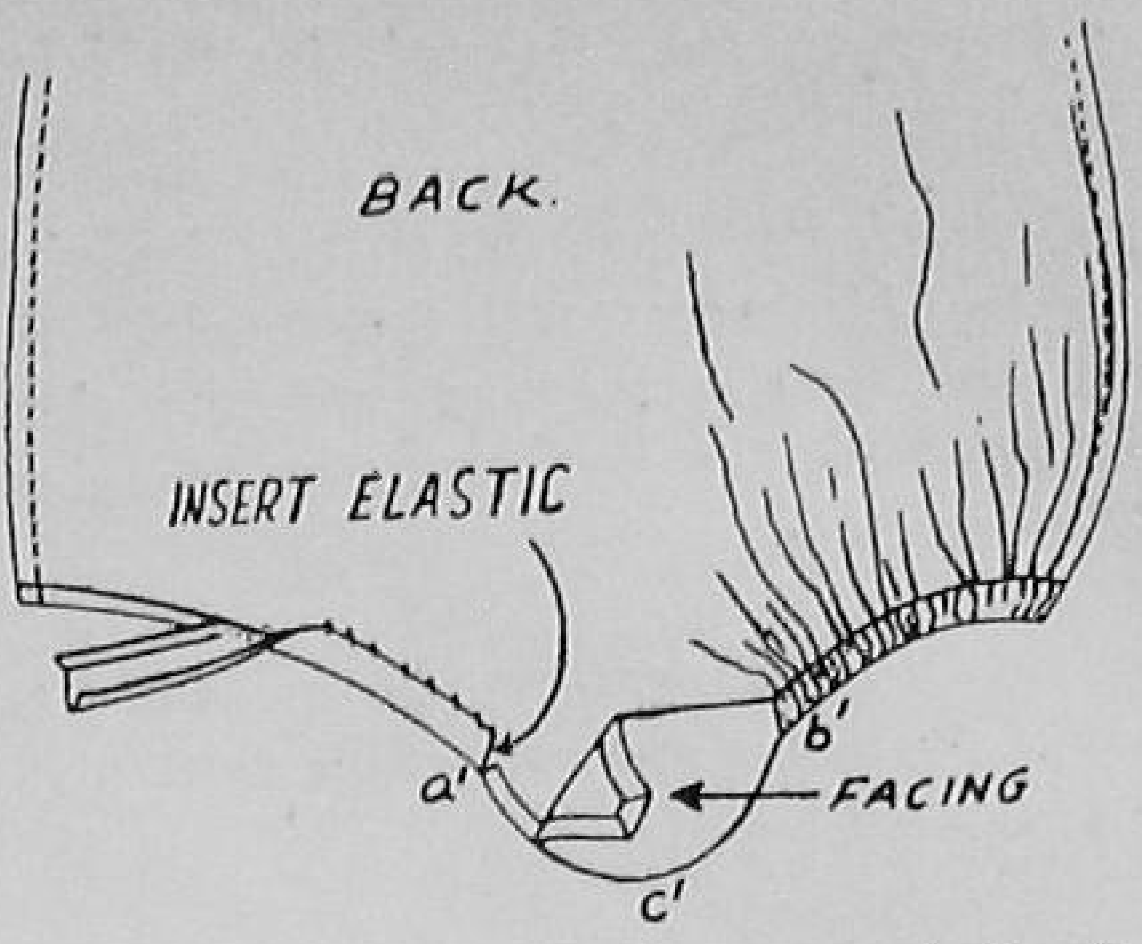


Fig. 10. *Facing the leg opening and the button band of the back*

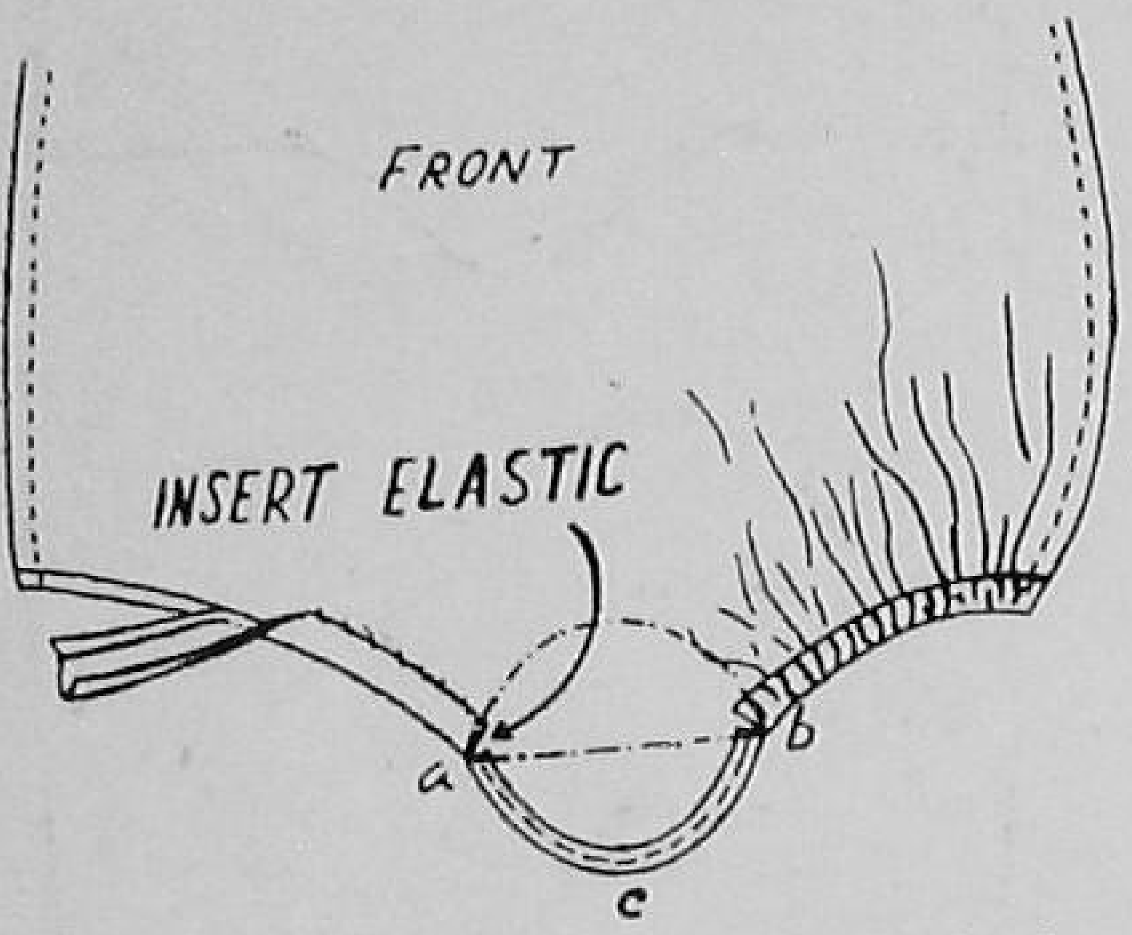


Fig. 9. *Facing the leg opening of the front*

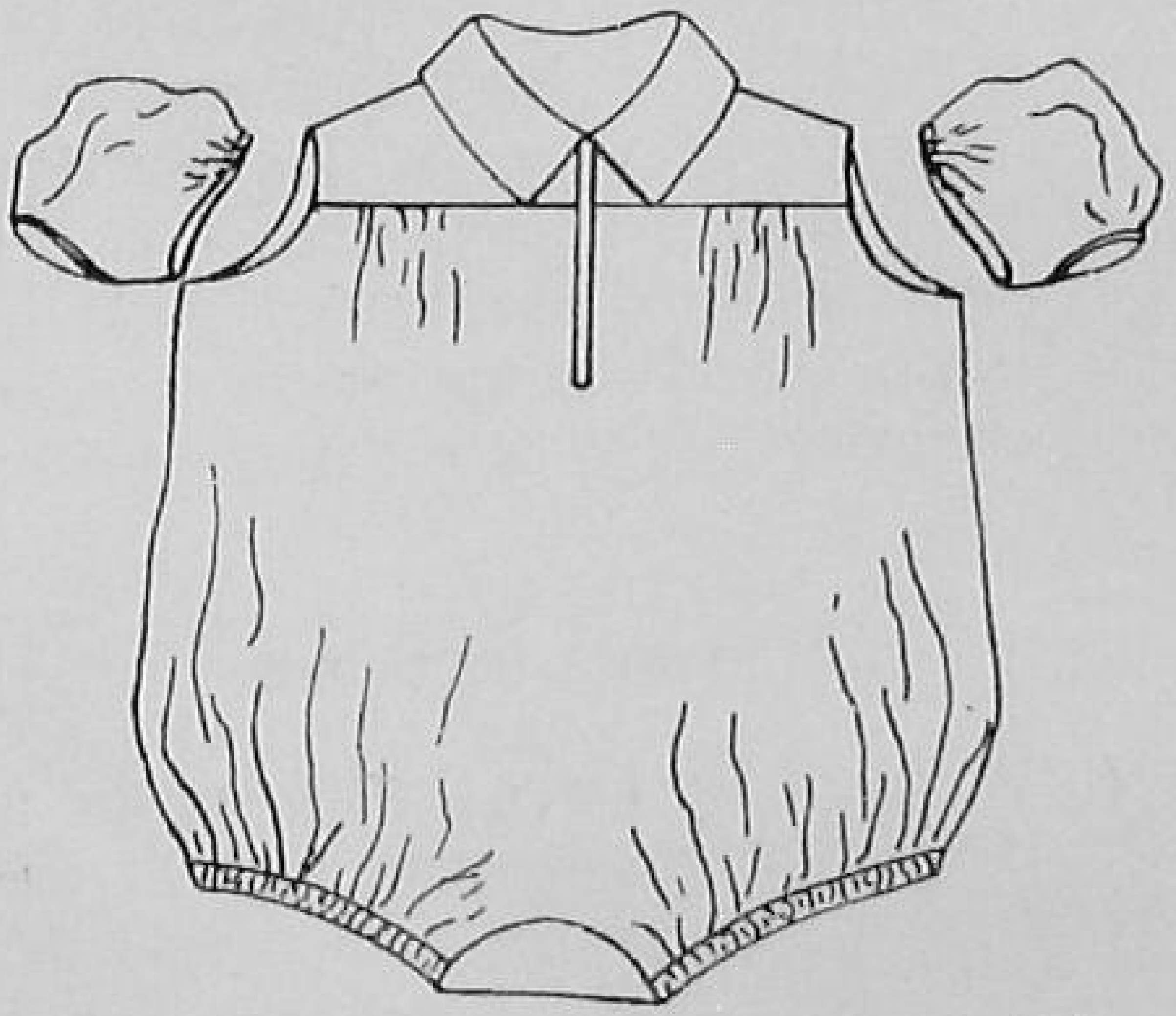


Fig. 11. *The sleeves and the main part of the romper placed side by side*

Gather the lower edges of the sleeves, to the required size and attach the sleeve bands. Leaving 2″ free from either side, gather the top of each sleeve to fit the armhole. Set each sleeve in the respective armhole, so that the side seams of the sleeve and the body match. The portion cut deeper in the sleeve-head should come to the front of the romper. (*See* Fig. 11).

Adjust the gathers of the sleeve-head evenly on either side of the shoulder seam. (*See* Fig. 11).

Place one collar over the other, and stitch them together, along the outer edge, allowing ½″ for the seam. Turn them inside out and pull out the corners to shape. Pin the collar to the neck of the romper, so that the centre of the neck of the collar coincides with the centre of the back neck and the neck ends of the collar come to the outer edges of the band opening. The circumference of the neck end of the collar will be slightly smaller than the neck of the romper. Adjust this extra material neatly at the back neck for the good fitting of the collar. Fix the collar to the neck with a bias strip of material (*See* Fig. 8). Fix a narrow button band below the left side binding of the neck opening and sew the required number of buttons and finish the romper. (*See Fig.* 8).

From the material left over, small articles like a bib or bonnet may be made.

L1D of A/63—GIPF.

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